



SEQUENCE LISTING

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<120> Molecular Antigen Array

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<140> 10/050,898

<141> 2002-01-18

<150> US 60/262,379

<151> 2001-01-19

<150> US 60/288,549

<151> 2001-05-04

<150> US 60/326,998

<151> 2001-10-05

<150> US 60/331,045

<151> 2001-11-07

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<170> PatentIn Ver. 3.2

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1 5 10 15

Thr Val Ala Gln Ala
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Cys Gly Gly Leu Thr Asp Thr Leu Gln Ala Glu Thr Asp Gln Val Glu
1 5 10 15

Asp Glu Lys Ser Ala Leu Gln Thr Glu Ile Ala Asn Leu Leu Lys Glu
20 25 30

Lys Glu Lys Leu Glu Phe Ile Leu Ala Ala His Gly Gly Cys
35 40 45

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<400> 16
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<400> 17
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ctgaccgaca ccctgcaggc ggaaaccgac caggtggaag acgaaaaatc cgcgctgcaa 180
accgaaatcg cgaacctgct gaaagaaaaa gaaaagctgg agttcatcct ggcggcacac 240
ggtggttgct aagctt 256

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Glu Thr Asp Gln Val Glu Asp Glu Lys Ser Ala Leu Gln Thr Glu Ile
20 25 30
Ala Asn Leu Leu Lys Glu Lys Glu Lys Leu Glu Phe Ile Leu Ala Ala
35 40 45
His Gly Gly Cys
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gca ctg gct ggt ttc gct acc gta gcg cag gcc tgc ggt ggt ctg acc 99
Ala Leu Ala Gly Phe Ala Thr Val Ala Gln Ala Cys Gly Gly Leu Thr
                        15                               20               25

gac acc ctg cag gcg gaa acc gac cag gtg gaa gac gaa aaa tcc gcg 147
Asp Thr Leu Gln Ala Glu Thr Asp Gln Val Glu Asp Glu Lys Ser Ala
                        30                               35               40

ctg caa acc gaa atc gcg aac ctg ctg aaa gaa aaa gaa aag ctg gag 195
Leu Gln Thr Glu Ile Ala Asn Leu Leu Lys Glu Lys Glu Lys Leu Glu
                        45                               50               55

ttc atc ctg gcg gca cac ggt ggt tgc ggt ggt tct gcg gcc gct 240
Phe Ile Leu Ala Ala His Gly Gly Cys Gly Gly Ser Ala Ala Ala
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gggtgtgggg atatcaagct t 261

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<400> 21

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Thr Val Ala Gln Ala Cys Gly Gly Leu Thr Asp Thr Leu Gln Ala Glu
      20                               25               30

Thr Asp Gln Val Glu Asp Glu Lys Ser Ala Leu Gln Thr Glu Ile Ala
      35                               40               45

Asn Leu Leu Lys Glu Lys Glu Lys Leu Glu Phe Ile Leu Ala Ala His
      50                               55               60

Gly Gly Cys Gly Gly Ser Ala Ala Ala
      65                               70

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<210> 22

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<222> (34) .. (189)

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ggt ggt ctg acc gac acc ctg cag gcg gaa acc gac cag gtg gaa gac 102
Gly Gly Leu Thr Asp Thr Leu Gln Ala Glu Thr Asp Gln Val Glu Asp
      10                      15                      20
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gaa aaa tcc gcg ctg caa acc gaa atc gcg aac ctg ctg aaa gaa aaa 150
Glu Lys Ser Ala Leu Gln Thr Glu Ile Ala Asn Leu Leu Lys Glu Lys
      25                      30                      35
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gaa aag ctg gag ttc atc ctg gcg gca cac ggt ggt tgc taagctt 196
Glu Lys Leu Glu Phe Ile Leu Ala Ala His Gly Gly Cys
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<210> 23

<211> 52

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<400> 23

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Glu Thr Asp Gln Val Glu Asp Glu Lys Ser Ala Leu Gln Thr Glu Ile
      20                      25                      30
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Ala Asn Leu Leu Lys Glu Lys Glu Lys Leu Glu Phe Ile Leu Ala Ala
      35                      40                      45
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His Gly Gly Cys
      50
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<210> 24

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<213> Artificial Sequence

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<223> Fos fusion construct

<400> 24

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accgaccagg tggaagacga aaaatccgcg ctgcaaaccg aaatcgcgaa cctgctgaaa 120
gaaaaagaaa agctggagtt catcctggcg gcacacgggtg gttgcggttg ttctgcggcc 180
gctgggtgtg gggatatcaa gctt                                     204
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Lys Thr Met Ala Cys Gly Gly Leu Thr Asp Thr Leu Gln Ala Glu Thr
1 5 10 15
Asp Gln Val Glu Asp Glu Lys Ser Ala Leu Gln Thr Glu Ile Ala Asn
20 25 30
Leu Leu Lys Glu Lys Glu Lys Leu Glu Phe Ile Leu Ala Ala His Gly
35 40 45
Gly Cys Gly Gly Ser Ala Ala Ala
50 55

<210> 26
<211> 26
<212> PRT
<213> Homo sapiens

<400> 26
Met Ala Thr Gly Ser Arg Thr Ser Leu Leu Leu Ala Phe Gly Leu Leu
1 5 10 15
Cys Leu Pro Trp Leu Gln Glu Gly Ser Ala
20 25

<210> 27
<211> 262
<212> DNA
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<220>
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tgcctgccct ggcttcaaga gggcagcgct ggggtgtggg cggccgcttc tgggtggttg 120
gggtggtctga ccgacaccct gcaggcggaa accgaccagg tggaagacga aaaatccgcg 180
ctgcaaaccg aaatcgcgaa cctgctgaaa gaaaaagaaa agctggagtt catcctggcg 240
gcacacgggtg gttgctaagc tt 262

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<213> Artificial Sequence

<220>
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<400> 28
Ala Ala Ala Ser Gly Gly Cys Gly Gly Leu Thr Asp Thr Leu Gln Ala
5 10 15

Glu Thr Asp Gln Val Glu Asp Glu Lys Ser Ala Leu Gln Thr Glu Ile
 20 25 30
 Ala Asn Leu Leu Lys Glu Lys Glu Lys Leu Glu Phe Ile Leu Ala Ala
 35 40 45
 His Gly Gly Cys
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<210> 29
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 ctg ctc tgc ctg ccc tgg ctt caa gag ggc agc gct tgc ggt ggt ctg 96
 Leu Leu Cys Leu Pro Trp Leu Gln Glu Gly Ser Ala Cys Gly Gly Leu
 15 20 25 30
 acc gac acc ctg cag gcg gaa acc gac cag gtg gaa gac gaa aaa tcc 144
 Thr Asp Thr Leu Gln Ala Glu Thr Asp Gln Val Glu Asp Glu Lys Ser
 35 40 45
 gcg ctg caa acc gaa atc gcg aac ctg ctg aaa gaa aaa gaa aag ctg 192
 Ala Leu Gln Thr Glu Ile Ala Asn Leu Leu Lys Glu Lys Glu Lys Leu
 50 55 60
 gag ttc atc ctg gcg gca cac ggt ggt tgc ggt ggt tct gcg gcc gct 240
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 65 70 75
 ggggtgtggga ggcctaagct t 261

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 1 5 10 15
 Cys Leu Pro Trp Leu Gln Glu Gly Ser Ala Cys Gly Gly Leu Thr Asp

20 25 30
Thr Leu Gln Ala Glu Thr Asp Gln Val Glu Asp Glu Lys Ser Ala Leu
35 40 45
Gln Thr Glu Ile Ala Asn Leu Leu Lys Glu Lys Glu Lys Leu Glu Phe
50 55 60
Ile Leu Ala Ala His Gly Gly Cys Gly Gly Ser Ala Ala Ala
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ggt ccg aac gaa ctc ggc cgc ttt aaa cac acc gac gca tgc tgt cgc 96
Gly Pro Asn Glu Leu Gly Arg Phe Lys His Thr Asp Ala Cys Cys Arg
20 25 30

acc cag gac atg tgt ccg gac gtc atg tct gct ggt gaa tct aaa cac 144
Thr Gln Asp Met Cys Pro Asp Val Met Ser Ala Gly Glu Ser Lys His
35 40 45

ggg tta act aac acc gct tct cac acg cgt ctc agc tgc gac tgc gac 192
Gly Leu Thr Asn Thr Ala Ser His Thr Arg Leu Ser Cys Asp Cys Asp
50 55 60

gac aaa ttc tac gac tgc ctt aag aac tcc gcc gat acc atc tct tct 240
Asp Lys Phe Tyr Asp Cys Leu Lys Asn Ser Ala Asp Thr Ile Ser Ser
65 70 75 80

tac ttc gtt ggt aaa atg tat ttc aac ctg atc gat acc aaa tgt tac 288
Tyr Phe Val Gly Lys Met Tyr Phe Asn Leu Ile Asp Thr Lys Cys Tyr
85 90 95

aaa ctg gaa cac ccg gta acc ggc tgc ggc gaa cgt acc gaa ggt cgc 336
Lys Leu Glu His Pro Val Thr Gly Cys Gly Glu Arg Thr Glu Gly Arg
100 105 110

tgc ctg cac tac acc gtt gac aaa tct aaa ccg aaa gtt tac cag tgg 384
Cys Leu His Tyr Thr Val Asp Lys Ser Lys Pro Lys Val Tyr Gln Trp
115 120 125

ttc gac ctg cgc aaa tac 402
Phe Asp Leu Arg Lys Tyr
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<210> 44

<211> 134

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<220>

<223> Modified bee venom phospholipase A2

<400> 44

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Gly Pro Asn Glu Leu Gly Arg Phe Lys His Thr Asp Ala Cys Cys Arg
20 25 30

Thr Gln Asp Met Cys Pro Asp Val Met Ser Ala Gly Glu Ser Lys His
35 40 45

Gly Leu Thr Asn Thr Ala Ser His Thr Arg Leu Ser Cys Asp Cys Asp
50 55 60

Asp Lys Phe Tyr Asp Cys Leu Lys Asn Ser Ala Asp Thr Ile Ser Ser
65 70 75 80

Tyr Phe Val Gly Lys Met Tyr Phe Asn Leu Ile Asp Thr Lys Cys Tyr
85 90 95

Lys Leu Glu His Pro Val Thr Gly Cys Gly Glu Arg Thr Glu Gly Arg
100 105 110

Cys Leu His Tyr Thr Val Asp Lys Ser Lys Pro Lys Val Tyr Gln Trp
115 120 125

Phe Asp Leu Arg Lys Tyr
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<210> 46
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<400> 46
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<210> 47
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<210> 49
<211> 18
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<400> 49
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<210> 50
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<210> 51
<211> 35
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<400> 51
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<400> 52
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<210> 53
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<400> 53
actagtctag aatgagagtg aaggagaaat atc 33

<210> 54
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<210> 57
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<400> 57
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<210> 58
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<220>
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<400> 58
gatgctgggc ccttaaccgc aaccaccgtg tgccgcc 37

<210> 59
<211> 46
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<213> Artificial Sequence

<220>
<223> JUN amino acid sequence

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Cys Gly Gly Arg Ile Ala Arg Leu Glu Glu Lys Val Lys Thr Leu Lys
1 5 10 15

Ala Gln Asn Ser Glu Leu Ala Ser Thr Ala Asn Met Leu Arg Glu Gln
20 25 30

Val Ala Gln Leu Lys Gln Lys Val Met Asn His Val Gly Cys
35 40 45

<210> 60

<211> 46

<212> PRT

<213> Artificial Sequence

<220>

<223> FOS amino acid sequence

<400> 60

Cys Gly Gly Leu Thr Asp Thr Leu Gln Ala Glu Thr Asp Gln Val Glu
1 5 10 15

Asp Glu Lys Ser Ala Leu Gln Thr Glu Ile Ala Asn Leu Leu Lys Glu
20 25 30

Lys Glu Lys Leu Glu Phe Ile Leu Ala Ala His Gly Gly Cys
35 40 45

<210> 61

<211> 33

<212> DNA

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<220>

<223> Primer

<400> 61

ccggaattca tgtgcggtgg tcggatcgcc cgg

33

<210> 62

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<223> Primer

<400> 62

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<210> 63

<211> 50

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<400> 63

gttggttgcg gagccgcggg tagcgacatt gacccttata aagaatttgg

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<210> 65
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<400> 65
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<210> 66
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<400> 66
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<400> 67
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<210> 68
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<400> 68
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<210> 69
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<400> 69
ctaattggatc cggtagggggc tgcggtgggc ggatcgcccg gtcgag

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<210> 70
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<400> 70
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39

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<400> 71
ccggaattca tggacattga cccttataaa g

31

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48

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45

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<210> 75
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<400> 75
ctagccgagg gttgcggtgg tcggatcgcc cgg 33

<210> 76
<211> 38
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<223> Primer

<400> 76
cgcggtcccaa gcttttagca accaacgtgg ttcattgac 38

<210> 77
<211> 30
<212> DNA
<213> Artificial Sequence

<220>
<223> Primer

<400> 77
ccggaattca tggccacact tttaaggagc 30

<210> 78
<211> 38
<212> DNA
<213> Artificial Sequence

<220>
<223> Primer

<400> 78
cgcggtcccaa gcttttagca accaacgtgg ttcattgac 38

<210> 79

<211> 31
<212> DNA
<213> Artificial Sequence

<220>
<223> Primer

<400> 79
ccggaattca tggacattga cccttataaa g 31

<210> 80
<211> 51
<212> DNA
<213> Artificial Sequence

<220>
<223> Primer

<400> 80
cctagagcca cctttgccac catcttctaa attagtacc acccaggtag c 51

<210> 81
<211> 48
<212> DNA
<213> Artificial Sequence

<220>
<223> Primer

<400> 81
gaagatgggtg gcaaagggtg ctctagggac ctagtagtca gttatgtc 48

<210> 82
<211> 38
<212> DNA
<213> Artificial Sequence

<220>
<223> Primer

<400> 82
cgcggtcccaa gcttctaaac aacagtagtc tccggaag 38

<210> 83
<211> 36
<212> DNA
<213> Artificial Sequence

<220>
<223> Primer

<400> 83
gccgaattcc tagcagctag caccgaattt atctaa 36

<210> 84
<211> 33
<212> DNA
<213> Artificial Sequence

<220>
<223> Primer

<400> 84
ggttaagtcg acatgagagt gaaggagaaa tat 33

<210> 85
<211> 30
<212> DNA
<213> Artificial Sequence

<220>
<223> Primer

<400> 85
taaccgaatt caggaggtaa aaagatatgg 30

<210> 86
<211> 35
<212> DNA
<213> Artificial Sequence

<220>
<223> Primer

<400> 86
gaagtaaagc ttttaaccac cgcaaccacc agaag 35

<210> 87
<211> 33
<212> DNA
<213> Artificial Sequence

<220>
<223> Primer

<400> 87
tcgaatgggc cctcatcttc gtgtgctagt cag 33

<210> 88
<211> 4
<212> PRT
<213> Artificial Sequence

<220>
<223> Fos fusion construct

<400> 88
Glu Phe Arg Arg

<210> 89
<211> 183
<212> PRT
<213> Hepatitis B virus

<400> 89
Met Asp Ile Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu
1 5 10 15
Ser Phe Leu Pro Ser Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Asp
20 25 30
Thr Ala Ser Ala Leu Tyr Arg Glu Ala Leu Glu Ser Pro Glu His Cys
35 40 45
Ser Pro His His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Glu
50 55 60
Leu Met Thr Leu Ala Thr Trp Val Gly Gly Asn Leu Glu Asp Pro Ile
65 70 75 80
Ser Arg Asp Leu Val Val Ser Tyr Val Asn Thr Asn Met Gly Leu Lys
85 90 95
Phe Arg Gln Leu Leu Trp Phe His Ile Ser Cys Leu Thr Phe Gly Arg
100 105 110
Glu Thr Val Ile Glu Tyr Leu Val Ser Phe Gly Val Trp Ile Arg Thr
115 120 125
Pro Pro Ala Tyr Arg Pro Pro Asn Ala Pro Ile Leu Ser Thr Leu Pro
130 135 140
Glu Thr Thr Val Val Arg Arg Arg Gly Arg Ser Pro Arg Arg Arg Thr
145 150 155 160
Pro Ser Pro Arg Arg Arg Arg Ser Gln Ser Pro Arg Arg Arg Arg Ser
165 170 175
Gln Ser Arg Gly Ser Gln Cys
180

<210> 90
<211> 183
<212> PRT
<213> Hepatitis B virus

<400> 90
Met Asp Ile Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu
1 5 10 15
Ser Phe Leu Pro Ser Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Asp
20 25 30
Thr Ala Ser Ala Leu Tyr Arg Glu Ala Leu Glu Ser Pro Glu His Cys
35 40 45
Ser Pro His His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Glu

| | | |
|---|-----|---------|
| 50 | 55 | 60 |
| Leu Met Thr Leu Ala Thr Trp Val Gly Gly Asn Leu Glu Asp Pro Thr | | |
| 65 | 70 | 75 80 |
| Ser Arg Asp Leu Val Val Ser Tyr Val Asn Thr Asn Met Gly Leu Lys | | |
| | 85 | 90 95 |
| Phe Arg Gln Leu Leu Trp Phe His Ile Ser Cys Leu Thr Phe Gly Arg | | |
| | 100 | 105 110 |
| Glu Thr Val Ile Glu Tyr Leu Val Ser Phe Gly Val Trp Ile Arg Thr | | |
| | 115 | 120 125 |
| Pro Pro Ala Tyr Arg Pro Thr Asn Ala Pro Ile Leu Ser Thr Leu Pro | | |
| | 130 | 135 140 |
| Glu Thr Cys Val Ile Arg Arg Arg Gly Arg Ser Pro Arg Arg Arg Thr | | |
| 145 | 150 | 155 160 |
| Pro Ser Pro Arg Arg Arg Arg Ser Gln Ser Pro Arg Arg Arg Arg Ser | | |
| | 165 | 170 175 |
| Gln Ser Arg Gly Ser Gln Cys | | |
| | 180 | |

<210> 91
 <211> 212
 <212> PRT
 <213> Hepatitis B virus

| |
|---|
| <400> 91 |
| Met Gln Leu Phe His Leu Cys Leu Ile Ile Ser Cys Ser Cys Pro Thr |
| 1 5 10 15 |
| Val Gln Ala Ser Lys Leu Cys Leu Gly Trp Leu Trp Gly Met Asp Ile |
| 20 25 30 |
| Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu Ser Phe Leu |
| 35 40 45 |
| Pro Ser Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Asp Thr Ala Ser |
| 50 55 60 |
| Ala Leu Tyr Arg Glu Ala Leu Glu Ser Pro Glu His Cys Ser Pro His |
| 65 70 75 80 |
| His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Glu Leu Met Thr |
| 85 90 95 |
| Leu Ala Thr Trp Val Gly Gly Asn Leu Glu Asp Pro Ile Ser Arg Asp |
| 100 105 110 |
| Leu Val Val Ser Tyr Val Asn Thr Asn Met Gly Leu Lys Phe Arg Gln |
| 115 120 125 |
| Leu Leu Trp Phe His Ile Ser Cys Leu Thr Phe Gly Arg Glu Thr Val |
| 130 135 140 |
| Ile Glu Tyr Leu Val Ser Phe Gly Val Trp Ile Arg Thr Pro Pro Ala |

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 145 | | 150 | | 155 | | 160 | | | | | | | | | |
| Tyr | Arg | Pro | Pro | Asn | Ala | Pro | Ile | Leu | Ser | Thr | Leu | Pro | Glu | Thr | Thr |
| | | | | 165 | | | | | 170 | | | | | 175 | |
| Val | Val | Arg | Arg | Arg | Gly | Arg | Ser | Pro | Arg | Arg | Arg | Thr | Pro | Ser | Pro |
| | | | 180 | | | | | 185 | | | | | 190 | | |
| Arg | Arg | Arg | Arg | Ser | Gln | Ser | Pro | Arg | Arg | Arg | Arg | Ser | Gln | Ser | Arg |
| | | | 195 | | | | 200 | | | | | 205 | | | |
| Glu | Ser | Gln | Cys | | | | | | | | | | | | |
| | | | 210 | | | | | | | | | | | | |

<210> 92
 <211> 212
 <212> PRT
 <213> Hepatitis B virus

| |
|---|
| <400> 92 |
| Met Gln Leu Phe His Leu Cys Leu Ile Ile Ser Cys Ser Cys Pro Thr |
| 1 5 10 15 |
| Val Gln Ala Ser Lys Leu Cys Leu Gly Trp Leu Trp Gly Met Asp Ile |
| 20 25 30 |
| Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu Ser Phe Leu |
| 35 40 45 |
| Pro Ser Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Asp Asn Ala Ser |
| 50 55 60 |
| Ala Leu Tyr Arg Glu Ala Leu Glu Ser Pro Glu His Cys Ser Pro His |
| 65 70 75 80 |
| His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Glu Leu Met Thr |
| 85 90 95 |
| Leu Ala Thr Trp Val Gly Gly Asn Leu Glu Asp Pro Ile Ser Arg Asp |
| 100 105 110 |
| Leu Val Val Ser Tyr Val Asn Thr Asn Met Gly Leu Lys Phe Arg Gln |
| 115 120 125 |
| Leu Leu Trp Phe His Ile Ser Cys Leu Thr Phe Gly Arg Glu Thr Val |
| 130 135 140 |
| Ile Glu Tyr Leu Val Ser Phe Gly Val Trp Ile Arg Thr Pro Pro Ala |
| 145 150 155 160 |
| Tyr Arg Pro Pro Asn Ala Pro Ile Leu Ser Thr Leu Pro Glu Thr Thr |
| 165 170 175 |
| Val Val Arg Arg Arg Gly Arg Ser Pro Arg Arg Arg Thr Pro Ser Pro |
| 180 185 190 |
| Arg Arg Arg Arg Ser Gln Ser Pro Arg Arg Arg Arg Ser Gln Ser Arg |
| 195 200 205 |
| Glu Ser Gln Cys |

210

<210> 93
 <211> 183
 <212> PRT
 <213> Hepatitis B virus

<400> 93
 Met Asp Ile Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu
 1 5 10 15
 Ser Phe Leu Pro Thr Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Asp
 20 25 30
 Thr Ala Ser Ala Leu Tyr Arg Glu Ala Leu Glu Ser Pro Glu His Cys
 35 40 45
 Ser Pro His His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Glu
 50 55 60
 Leu Met Thr Leu Ala Thr Trp Val Gly Val Asn Leu Glu Asp Pro Ala
 65 70 75 80
 Ser Arg Asp Leu Val Val Ser Tyr Val Asn Thr Asn Met Gly Leu Lys
 85 90 95
 Phe Arg Gln Leu Leu Trp Phe His Ile Ser Cys Leu Thr Phe Gly Arg
 100 105 110
 Glu Thr Val Ile Glu Tyr Leu Val Ser Phe Gly Val Trp Ile Arg Thr
 115 120 125
 Pro Pro Ala Tyr Arg Pro Pro Asn Ala Pro Ile Leu Ser Thr Leu Pro
 130 135 140
 Glu Thr Cys Val Val Arg Arg Arg Gly Arg Ser Pro Arg Arg Arg Thr
 145 150 155 160
 Pro Ser Pro Arg Arg Arg Arg Ser Gln Ser Pro Arg Arg Arg Arg Ser
 165 170 175
 Gln Ser Arg Glu Ser Gln Cys
 180

<210> 94
 <211> 212
 <212> PRT
 <213> Hepatitis B virus

<400> 94
 Met Gln Leu Phe His Leu Cys Leu Ile Ile Ser Cys Ser Cys Pro Thr
 1 5 10 15
 Val Gln Ala Ser Lys Leu Cys Leu Gly Trp Leu Trp Gly Met Asp Ile
 20 25 30
 Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu Ser Phe Leu
 35 40 45

Pro Ser Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Asp Thr Ala Ser
50 55 60

Ala Leu Tyr Arg Glu Ala Leu Glu Ser Pro Glu His Cys Ser Pro His
65 70 75 80

His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Asp Leu Met Thr
85 90 95

Leu Ala Thr Trp Val Gly Gly Asn Leu Glu Asp Pro Val Ser Arg Asp
100 105 110

Leu Val Val Ser Tyr Val Asn Thr Asn Val Gly Leu Lys Phe Arg Gln
115 120 125

Leu Leu Trp Phe His Ile Ser Cys Leu Thr Phe Gly Arg Glu Thr Val
130 135 140

Ile Glu Tyr Leu Val Ser Phe Gly Val Trp Ile Arg Thr Pro Pro Ala
145 150 155 160

Tyr Arg Pro Pro Asn Ala Pro Ile Leu Ser Thr Leu Pro Glu Thr Thr
165 170 175

Val Val Arg Arg Arg Gly Arg Ser Pro Arg Arg Arg Thr Pro Ser Pro
180 185 190

Arg Arg Arg Arg Ser Gln Ser Pro Arg Arg Arg Arg Ser Gln Ser Arg
195 200 205

Glu Ser Gln Cys
210

<210> 95
<211> 212
<212> PRT
<213> Hepatitis B virus

<400> 95
Met Gln Leu Phe His Leu Cys Leu Ile Ile Ser Cys Ser Cys Pro Thr
1 5 10 15

Val Gln Ala Ser Lys Leu Cys Leu Gly Trp Leu Trp Asp Met Asp Ile
20 25 30

Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu Ser Phe Leu
35 40 45

Pro Ser Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Asp Thr Ala Ser
50 55 60

Ala Leu Tyr Arg Glu Ala Leu Glu Ser Pro Glu His Cys Ser Pro His
65 70 75 80

His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Asp Leu Met Thr
85 90 95

Leu Ala Thr Trp Val Gly Gly Asn Leu Glu Asp Pro Val Ser Arg Asp
100 105 110

Leu Val Val Ser Tyr Val Asn Thr Asn Val Gly Leu Lys Phe Arg Gln
115 120 125

Leu Leu Trp Phe His Ile Ser Cys Leu Thr Phe Gly Arg Glu Thr Val
130 135 140

Ile Glu Tyr Leu Val Ser Phe Gly Val Trp Ile Arg Thr Pro Pro Ala
145 150 155 160

Tyr Arg Pro Pro Asn Ala Pro Ile Leu Ser Thr Leu Pro Glu Thr Thr
165 170 175

Val Val Arg Arg Arg Gly Arg Ser Pro Arg Arg Arg Thr Pro Ser Pro
180 185 190

Arg Arg Arg Arg Ser Gln Ser Pro Arg Arg Arg Arg Ser Gln Ser Arg
195 200 205

Glu Ser Gln Cys
210

<210> 96
<211> 212
<212> PRT
<213> Hepatitis B virus

<400> 96
Met Gln Leu Phe His Leu Cys Leu Ile Ile Ser Cys Ser Cys Pro Thr
1 5 10 15

Val Gln Ala Ser Lys Leu Cys Leu Gly Trp Leu Trp Gly Met Asp Ile
20 25 30

Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu Ser Phe Leu
35 40 45

Pro Ser Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Asp Thr Ala Ser
50 55 60

Ala Leu Tyr Arg Glu Ala Leu Glu Ser Pro Glu His Cys Ser Pro Gln
65 70 75 80

His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Glu Leu Met Thr
85 90 95

Leu Ala Thr Trp Val Gly Gly Asn Leu Glu Asp Pro Ile Ser Arg Asp
100 105 110

Leu Val Val Ser Tyr Val Asn Thr Asn Met Gly Leu Lys Phe Arg Gln
115 120 125

Leu Leu Trp Phe His Ile Ser Cys Leu Thr Phe Gly Arg Glu Thr Val
130 135 140

Ile Glu Tyr Leu Val Ser Phe Gly Val Trp Ile Arg Thr Pro Pro Ala
145 150 155 160

Tyr Arg Pro Pro Asn Ala Pro Ile Leu Ser Thr Leu Pro Glu Thr Thr
165 170 175

Val Val Arg Arg Arg Gly Arg Ser Pro Arg Arg Arg Thr Pro Ser Pro
180 185 190

Arg Arg Arg Arg Ser Gln Ser Pro Arg Arg Arg Arg Ser Gln Ser Arg
195 200 205

Glu Ser Gln Cys
210

<210> 97

<211> 212

<212> PRT

<213> Hepatitis B virus

<400> 97

Met Gln Leu Phe His Leu Cys Leu Ile Ile Ser Cys Ser Cys Pro Thr
1 5 10 15

Val Gln Ala Ser Lys Leu Cys Leu Gly Trp Leu Trp Gly Met Asp Ile
20 25 30

Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu Ser Phe Leu
35 40 45

Pro Ser Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Asp Thr Ala Ser
50 55 60

Ala Leu Tyr Arg Glu Ala Leu Glu Ser Pro Glu His Cys Ser Pro His
65 70 75 80

His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Glu Leu Met Thr
85 90 95

Leu Ala Thr Trp Val Gly Val Asn Leu Glu Asp Pro Ala Ser Arg Asp
100 105 110

Leu Val Val Ser Tyr Val Asn Thr Asn Met Gly Leu Lys Phe Arg Gln
115 120 125

Leu Leu Trp Phe His Ile Ser Cys Leu Thr Phe Gly Arg Glu Thr Val
130 135 140

Ile Glu Tyr Leu Val Ser Phe Gly Val Trp Ile Arg Thr Pro Pro Ala
145 150 155 160

Tyr Lys Pro Pro Asn Ala Pro Ile Leu Ser Thr Leu Pro Glu Thr Thr
165 170 175

Val Val Arg Arg Arg Gly Arg Ser Pro Arg Arg Arg Thr Pro Ser Pro
180 185 190

Arg Arg Arg Arg Ser Gln Ser Pro Arg Arg Arg Arg Ser Gln Ser Arg
195 200 205

Gly Ser Gln Cys
210

<210> 98

<211> 183

<212> PRT

<213> Hepatitis B virus

<400> 98

Met Asp Ile Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu
1 5 10 15
Ser Phe Leu Pro Ser Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Asp
20 25 30
Thr Ala Ser Ala Leu Phe Arg Asp Ala Leu Glu Ser Pro Glu His Cys
35 40 45
Ser Pro His His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Glu
50 55 60
Leu Met Thr Leu Ala Thr Trp Val Gly Gly Asn Leu Glu Asp Pro Ala
65 70 75 80
Ser Arg Asp Leu Val Val Ser Tyr Val Asn Thr Asn Met Gly Leu Lys
85 90 95
Phe Arg Gln Leu Leu Trp Phe His Ile Ser Cys Leu Thr Phe Gly Arg
100 105 110
Asp Thr Val Ile Glu Tyr Leu Val Ser Phe Gly Val Trp Ile Arg Thr
115 120 125
Pro Pro Ala Tyr Arg Pro Ser Asn Ala Pro Ile Leu Ser Thr Leu Pro
130 135 140
Glu Thr Cys Val Val Arg Arg Arg Gly Arg Ser Pro Arg Arg Arg Thr
145 150 155 160
Pro Ser Pro Arg Arg Arg Arg Ser Gln Ser Pro Arg Arg Arg Arg Ser
165 170 175
Gln Ser Arg Glu Ser Gln Cys
180

<210> 99

<211> 183

<212> PRT

<213> Hepatitis B virus

<400> 99

Met Asp Ile Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu
1 5 10 15
Ser Phe Leu Pro Ser Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Asp
20 25 30
Thr Ala Ser Ala Leu Tyr Arg Glu Ala Leu Glu Ser Pro Glu His Cys
35 40 45
Ser Pro His His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Glu
50 55 60
Leu Met Thr Leu Ala Thr Trp Val Gly Val Asn Leu Glu Asp Pro Ala
65 70 75 80

Ser Arg Asp Leu Val Val Ser Tyr Val Asn Thr Asn Met Gly Leu Lys
85 90 95

Phe Arg Gln Leu Leu Trp Phe His Ile Ser Cys Leu Thr Phe Gly Arg
100 105 110

Glu Thr Val Ile Glu Tyr Leu Val Ser Phe Gly Val Trp Ile Arg Thr
115 120 125

Pro Pro Ala Tyr Arg Pro Pro Asn Ala Pro Ile Leu Ser Thr Leu Pro
130 135 140

Glu Thr Thr Val Val Arg Arg Arg Gly Arg Ser Pro Arg Arg Arg Thr
145 150 155 160

Pro Ser Pro Arg Arg Arg Arg Ser Gln Ser Pro Arg Arg Arg Arg Ser
165 170 175

Gln Ser Arg Glu Ser Gln Cys
180

<210> 100
<211> 212
<212> PRT
<213> Hepatitis B virus

<400> 100
Met Gln Leu Phe His Leu Cys Leu Ile Ile Ser Cys Ser Cys Pro Thr
1 5 10 15

Val Gln Ala Ser Lys Leu Cys Leu Gly Trp Leu Trp Gly Met Asp Ile
20 25 30

Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu Ser Phe Leu
35 40 45

Pro Ser Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Asp Thr Ala Ser
50 55 60

Ala Leu Tyr Arg Glu Ala Leu Glu Ser Pro Glu His Cys Ser Pro His
65 70 75 80

His Thr Ala Leu Arg His Ala Ile Leu Cys Trp Gly Asp Leu Arg Thr
85 90 95

Leu Ala Thr Trp Val Gly Gly Asn Leu Glu Asp Pro Ile Ser Arg Asp
100 105 110

Leu Val Val Ser Tyr Val Asn Thr Asn Met Gly Leu Lys Phe Arg Gln
115 120 125

Leu Leu Trp Phe His Ile Ser Cys Leu Thr Phe Gly Arg Glu Thr Val
130 135 140

Ile Glu Tyr Leu Val Ser Phe Gly Val Trp Ile Arg Thr Pro Pro Ala
145 150 155 160

Tyr Arg Pro Pro Asn Ala Pro Ile Leu Ser Thr Leu Pro Glu Thr Thr
165 170 175

Val Val Arg Arg Arg Gly Arg Ser Pro Arg Arg Arg Thr Pro Ser Pro
180 185 190

Arg Arg Arg Arg Ser Gln Ser Pro Arg Arg Arg Arg Ser Gln Ser Arg
195 200 205

Glu Ser Gln Cys
210

<210> 101

<211> 212

<212> PRT

<213> Hepatitis B virus

<400> 101

Met Gln Leu Phe His Leu Cys Leu Ile Ile Ser Cys Ser Cys Pro Thr
1 5 10 15

Val Gln Ala Ser Lys Leu Cys Leu Gly Trp Leu Trp Asp Met Asp Ile
20 25 30

Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu Ser Phe Leu
35 40 45

Pro Ser Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Asp Thr Ala Ser
50 55 60

Ala Leu Phe Arg Asp Ala Leu Glu Ser Pro Glu His Cys Ser Pro His
65 70 75 80

His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Glu Leu Met Thr
85 90 95

Leu Ala Thr Trp Val Gly Ala Asn Leu Glu Asp Pro Ala Ser Arg Asp
100 105 110

Leu Val Val Ser Tyr Val Asn Thr Asn Met Gly Leu Lys Phe Arg Gln
115 120 125

Leu Leu Trp Phe His Ile Ser Cys Leu Thr Phe Gly Arg Glu Thr Val
130 135 140

Ile Glu Tyr Leu Val Ser Phe Gly Val Trp Ile Arg Thr Pro Gln Ala
145 150 155 160

Tyr Arg Pro Pro Asn Ala Pro Ile Leu Ser Thr Leu Pro Glu Thr Cys
165 170 175

Val Val Arg Arg Arg Gly Arg Ser Pro Arg Arg Arg Thr Pro Ser Pro
180 185 190

Arg Arg Arg Arg Ser Gln Ser Pro Arg Arg Arg Arg Ser Gln Ser Arg
195 200 205

Glu Ser Gln Cys
210

<210> 102

<211> 183
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic human Hepatitis B construct

<400> 102

Met Asp Ile Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu
1 5 10 15
Ser Phe Leu Pro Ser Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Asp
20 25 30
Thr Ala Ser Ala Leu Tyr Arg Glu Ala Leu Glu Ser Pro Glu His Cys
35 40 45
Ser Pro His His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Glu
50 55 60
Leu Met Thr Leu Ala Thr Trp Val Gly Val Asn Leu Glu Asp Pro Ala
65 70 75 80
Ser Arg Asp Leu Val Val Ser Tyr Val Asn Thr Asn Met Gly Leu Lys
85 90 95
Phe Arg Gln Leu Leu Trp Phe His Ile Ser Cys Leu Thr Phe Gly Arg
100 105 110
Glu Thr Val Leu Glu Tyr Leu Val Ser Phe Gly Val Trp Ile Arg Thr
115 120 125
Pro Pro Ala Tyr Arg Pro Pro Asn Ala Pro Ile Leu Ser Thr Leu Pro
130 135 140
Glu Thr Thr Val Val Arg Arg Arg Gly Arg Ser Pro Arg Arg Arg Thr
145 150 155 160
Pro Ser Pro Arg Arg Arg Arg Ser Gln Ser Pro Arg Arg Arg Arg Ser
165 170 175
Gln Ser Arg Glu Ser Gln Cys
180

<210> 103
<211> 212
<212> PRT
<213> Hepatitis B virus

<400> 103

Met Gln Leu Phe His Leu Cys Leu Ile Ile Ser Cys Ser Cys Pro Thr
1 5 10 15
Val Gln Ala Ser Lys Leu Cys Leu Gly Trp Leu Trp Gly Met Asp Ile
20 25 30
Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu Ser Phe Leu
35 40 45
Pro Ser Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Asp Thr Ala Ser

| | | | | |
|---------------------|-------------------------|-----------------------------|--|-----|
| 50 | | 55 | | 60 |
| Ala Leu Tyr Arg Glu | Ala Leu Glu Ser Pro | Glu His Cys Ser Pro His | | |
| 65 | 70 | 75 | | 80 |
| His Thr Ala Leu Arg | Gln Ala Ile Leu Cys Trp | Gly Asp Leu Met Ser | | |
| | 85 | 90 | | 95 |
| Leu Ala Thr Trp Val | Gly Val Asn Leu Glu Asp | Pro Ile Ser Arg Asp | | |
| | 100 | 105 | | 110 |
| Leu Val Val Ser Tyr | Val Asn Thr Asn Met | Gly Leu Lys Phe Arg Gln | | |
| | 115 | 120 | | 125 |
| Leu Leu Trp Phe His | Ile Ser Cys Leu Thr | Phe Gly Arg Glu Thr Val | | |
| | 130 | 135 | | 140 |
| Ile Glu Tyr Leu Val | Ser Phe Gly Val Trp | Ile Arg Thr Pro Pro Ala | | |
| 145 | 150 | 155 | | 160 |
| Tyr Arg Pro Pro | Asn Ala Pro Ile Leu | Ser Thr Leu Pro Glu Thr Thr | | |
| | 165 | 170 | | 175 |
| Val Val Arg Arg Arg | Gly Arg Ser Pro Arg | Arg Arg Thr Pro Ser Pro | | |
| | 180 | 185 | | 190 |
| Arg Arg Arg Arg | Ser Gln Ser Pro Arg | Arg Arg Arg Ser Gln Ser Arg | | |
| | 195 | 200 | | 205 |
| Glu Ser Gln Cys | | | | |
| 210 | | | | |

<210> 104
 <211> 183
 <212> PRT
 <213> Hepatitis B virus

| |
|---|
| <400> 104 |
| Met Asp Ile Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu |
| 1 5 10 15 |
| Ser Phe Leu Pro Ser Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Asp |
| 20 25 30 |
| Thr Ala Ser Ala Leu Tyr Arg Asp Ala Leu Glu Ser Pro Glu His Cys |
| 35 40 45 |
| Ser Pro His His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Glu |
| 50 55 60 |
| Leu Met Thr Leu Ala Thr Trp Val Gly Val Asn Leu Glu Asp Pro Ala |
| 65 70 75 80 |
| Ser Arg Asp Leu Val Ser Tyr Val Asn Thr Asn Met Gly Leu Lys |
| 85 90 95 |
| Phe Arg Gln Leu Leu Trp Phe His Ile Ser Cys Leu Thr Phe Gly Arg |
| 100 105 110 |
| Glu Thr Val Ile Glu Tyr Leu Val Ser Phe Gly Val Trp Ile Arg Thr |

| | | |
|---|-----|-----|
| 115 | 120 | 125 |
| Pro Pro Ala Tyr Arg Pro Pro Asn Ala Pro Ile Leu Ser Thr Leu Pro | | |
| 130 | 135 | 140 |
| Glu Thr Thr Val Val Arg Arg Arg Gly Arg Ser Pro Arg Arg Arg Thr | | |
| 145 | 150 | 155 |
| Pro Ser Pro Arg Arg Arg Arg Ser Gln Ser Pro Arg Arg Arg Arg Ser | | |
| | 165 | 170 |
| | | 175 |
| Gln Ser Arg Glu Ser Gln Cys | | |
| 180 | | |

<210> 105
 <211> 183
 <212> PRT
 <213> Hepatitis B virus

| |
|---|
| <400> 105 |
| Met Asp Ile Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu |
| 1 5 10 15 |
| Ser Phe Leu Pro Ser Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Asp |
| 20 25 30 |
| Thr Ala Ser Ala Leu Tyr Arg Glu Ala Leu Glu Ser Pro Glu His Cys |
| 35 40 45 |
| Ser Pro His His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Asp |
| 50 55 60 |
| Leu Met Thr Leu Ala Thr Trp Val Gly Val Asn Leu Glu Asp Pro Ala |
| 65 70 75 80 |
| Ser Arg Asp Leu Val Ser Tyr Val Asn Thr Asn Met Gly Leu Lys |
| 85 90 95 |
| Phe Arg Gln Leu Leu Trp Phe His Ile Ser Cys Leu Thr Phe Gly Arg |
| 100 105 110 |
| Glu Thr Val Ile Glu Tyr Leu Val Ser Phe Gly Val Trp Ile Arg Thr |
| 115 120 125 |
| Pro Pro Ala Tyr Arg Pro Pro Asn Ala Pro Ile Leu Ser Thr Leu Pro |
| 130 135 140 |
| Glu Thr Thr Val Val Arg Arg Arg Gly Arg Ser Pro Arg Arg Arg Thr |
| 145 150 155 160 |
| Pro Ser Pro Arg Arg Arg Arg Ser Gln Ser Pro Arg Arg Arg Arg Ser |
| 165 170 175 |
| Gln Ser Arg Glu Ser Gln Cys |
| 180 |

<210> 106
 <211> 183
 <212> PRT

<213> Hepatitis B virus

<400> 106

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Met Asp Ile Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu
 1           5           10           15

Ser Phe Leu Pro Ser Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Asp
          20           25           30

Thr Ala Ser Ala Leu Tyr Arg Asp Ala Leu Glu Ser Pro Glu His Cys
      35           40           45

Ser Pro His His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Glu
      50           55           60

Leu Met Thr Leu Ala Thr Trp Val Gly Ala Asn Leu Glu Asp Pro Ala
      65           70           75           80

Ser Arg Asp Leu Val Val Ser Tyr Val Asn Thr Asn Met Gly Leu Lys
          85           90           95

Phe Arg Gln Leu Leu Trp Phe His Ile Ser Cys Leu Thr Phe Gly Arg
      100           105           110

Glu Thr Val Ile Glu Tyr Leu Val Ser Phe Gly Val Trp Ile Arg Thr
      115           120           125

Pro Pro Ala Tyr Arg Pro Pro Asn Ala Pro Ile Leu Ser Thr Leu Pro
      130           135           140

Glu Thr Thr Val Val Arg Arg Arg Gly Arg Thr Pro Arg Arg Arg Thr
      145           150           155           160

Pro Ser Pro Arg Arg Arg Arg Ser Gln Ser Pro Arg Arg Arg Arg Ser
          165           170           175

Gln Ser Arg Glu Ser Gln Cys
      180

```

<210> 107

<211> 212

<212> PRT

<213> Hepatitis B virus

<400> 107

```

Met Gln Leu Phe His Leu Cys Leu Ile Ile Ser Cys Ser Cys Pro Thr
 1           5           10           15

Val Gln Ala Ser Lys Leu Cys Leu Gly Trp Leu Trp Gly Met Asp Ile
      20           25           30

Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu Ser Phe Leu
      35           40           45

Pro Ser Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Asp Thr Ala Ser
      50           55           60

Ala Leu Tyr Arg Asp Ala Leu Glu Ser Pro Glu His Cys Ser Pro His
      65           70           75           80

```

His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Glu Leu Met Thr
85 90 95

Leu Ala Thr Trp Val Gly Val Asn Leu Glu Asp Pro Ala Ser Arg Asp
100 105 110

Leu Val Val Ser Tyr Val Asn Thr Asn Met Gly Leu Lys Phe Arg Gln
115 120 125

Leu Leu Trp Phe His Ile Ser Cys Leu Thr Phe Gly Arg Glu Thr Val
130 135 140

Ile Glu Tyr Leu Val Ser Phe Gly Val Trp Ile Arg Thr Pro Pro Ala
145 150 155 160

Tyr Arg Pro Pro Asn Ala Pro Ile Leu Ser Thr Leu Pro Glu Thr Thr
165 170 175

Val Val Arg Arg Arg Gly Arg Ser Pro Arg Arg Arg Thr Pro Ser Pro
180 185 190

Arg Arg Arg Arg Ser Gln Ser Pro Arg Arg Arg Arg Ser Gln Ser Arg
195 200 205

Glu Ser Gln Cys
210

<210> 108
<211> 212
<212> PRT
<213> Hepatitis B virus

<400> 108
Met Gln Leu Phe His Leu Cys Leu Ile Ile Ser Cys Ser Cys Pro Thr
1 5 10 15

Val Gln Ala Ser Lys Leu Cys Leu Gly Trp Leu Trp Gly Met Asp Ile
20 25 30

Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu Ser Phe Leu
35 40 45

Pro Ser Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Asp Thr Ala Ser
50 55 60

Ala Leu Tyr Arg Glu Ala Leu Glu Ser Pro Glu His Cys Ser Pro His
65 70 75 80

His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Asp Leu Met Thr
85 90 95

Leu Ala Thr Trp Val Gly Val Asn Leu Glu Asp Pro Ala Ser Arg Asp
100 105 110

Leu Val Val Ser Tyr Val Asn Thr Asn Met Gly Leu Lys Phe Arg Gln
115 120 125

Leu Leu Trp Phe His Ile Ser Cys Leu Thr Phe Gly Arg Glu Thr Val
130 135 140

| | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|
| Ile | Glu | Tyr | Leu | Val | Ser | Phe | Gly | Val | Trp | Ile | Arg | Thr | Pro | Pro | Ala | |
| 145 | | | | | 150 | | | | | 155 | | | | | 160 | |
| Tyr | Arg | Pro | Pro | Asn | Ala | Pro | Ile | Leu | Ser | Thr | Leu | Pro | Glu | Thr | Thr | |
| | | | | 165 | | | | | 170 | | | | | 175 | | |
| Val | Val | Arg | Arg | Arg | Gly | Arg | Ser | Pro | Arg | Arg | Arg | Thr | Pro | Ser | Pro | |
| | | | 180 | | | | | 185 | | | | | 190 | | | |
| Arg | Arg | Arg | Arg | Ser | Gln | Ser | Pro | Arg | Arg | Arg | Arg | Ser | Gln | Ser | Arg | |
| | | 195 | | | | | 200 | | | | | 205 | | | | |
| Glu | Ser | Gln | Cys | | | | | | | | | | | | | |
| 210 | | | | | | | | | | | | | | | | |

<210> 109
 <211> 212
 <212> PRT
 <213> Hepatitis B virus

| | | | | | | | | | | | | | | | | |
|-----------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|
| <400> 109 | | | | | | | | | | | | | | | | |
| Met | Gln | Leu | Phe | His | Leu | Cys | Leu | Ile | Ile | Ser | Cys | Thr | Cys | Pro | Thr | |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | | |
| Val | Gln | Ala | Ser | Lys | Leu | Cys | Leu | Gly | Trp | Leu | Trp | Gly | Met | Asp | Ile | |
| | | | 20 | | | | | 25 | | | | | 30 | | | |
| Asp | Pro | Tyr | Lys | Glu | Phe | Gly | Ala | Thr | Val | Glu | Leu | Leu | Ser | Phe | Leu | |
| | | 35 | | | | | 40 | | | | | 45 | | | | |
| Pro | Ser | Asp | Phe | Phe | Pro | Ser | Val | Arg | Asp | Leu | Leu | Asp | Thr | Ala | Ser | |
| | 50 | | | | | 55 | | | | | 60 | | | | | |
| Ala | Leu | Tyr | Arg | Glu | Ala | Leu | Glu | Ser | Pro | Glu | His | Cys | Ser | Pro | His | |
| 65 | | | | | 70 | | | | | 75 | | | | | 80 | |
| His | Thr | Ala | Leu | Arg | Gln | Ala | Ile | Leu | Cys | Trp | Gly | Glu | Leu | Met | Thr | |
| | | | | 85 | | | | | 90 | | | | | 95 | | |
| Leu | Ala | Thr | Trp | Val | Gly | Val | Asn | Leu | Glu | Asp | Pro | Ala | Ser | Arg | Asp | |
| | | | 100 | | | | | 105 | | | | | 110 | | | |
| Leu | Val | Val | Ser | Tyr | Val | Asn | Thr | Asn | Met | Gly | Leu | Lys | Phe | Arg | Gln | |
| | 115 | | | | | | 120 | | | | | 125 | | | | |
| Leu | Leu | Trp | Phe | His | Ile | Ser | Cys | Leu | Thr | Phe | Gly | Arg | Glu | Thr | Val | |
| | 130 | | | | | 135 | | | | | 140 | | | | | |
| Ile | Glu | Tyr | Leu | Val | Ala | Phe | Gly | Val | Trp | Ile | Arg | Thr | Pro | Pro | Ala | |
| 145 | | | | | 150 | | | | | 155 | | | | | 160 | |
| Tyr | Arg | Pro | Pro | Asn | Ala | Pro | Ile | Leu | Ser | Thr | Leu | Pro | Glu | Thr | Thr | |
| | | | | 165 | | | | | 170 | | | | | 175 | | |
| Val | Val | Arg | Arg | Arg | Gly | Arg | Ser | Pro | Arg | Arg | Arg | Thr | Pro | Ser | Pro | |
| | | | 180 | | | | | 185 | | | | | 190 | | | |
| Arg | Arg | Arg | Arg | Ser | Gln | Ser | Pro | Arg | Arg | Arg | Arg | Ser | Gln | Ser | Arg | |
| | | 195 | | | | | 200 | | | | | 205 | | | | |

Glu Ser Gln Cys
210

<210> 110
<211> 212
<212> PRT
<213> Hepatitis B virus

<400> 110
Met Gln Leu Phe His Leu Cys Leu Ile Ile Ser Cys Ser Cys Pro Thr
1 5 10 15
Val Gln Ala Ser Lys Leu Cys Leu Gly Trp Leu Trp Gly Met Asp Ile
20 25 30
Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu Ser Phe Leu
35 40 45
Pro Ser Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Asp Thr Ala Ser
50 55 60
Ala Leu Tyr Arg Glu Ala Phe Glu Cys Ser Glu His Cys Ser Pro His
65 70 75 80
His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Glu Leu Met Thr
85 90 95
Leu Ala Thr Trp Val Gly Gly Asn Leu Glu Asp Pro Ile Ser Arg Asp
100 105 110
Leu Val Val Ser Tyr Val Asn Thr Asn Met Gly Leu Lys Phe Arg Gln
115 120 125
Leu Leu Trp Phe His Ile Ser Cys Leu Thr Phe Gly Arg Glu Thr Val
130 135 140
Ile Glu Tyr Leu Val Ser Phe Gly Val Trp Ile Arg Thr Pro Pro Ala
145 150 155 160
Tyr Arg Pro Pro Asn Ala Pro Ile Leu Ser Thr Leu Pro Glu Thr Thr
165 170 175
Val Val Arg Arg Arg Gly Arg Ser Pro Arg Arg Arg Thr Pro Ser Pro
180 185 190
Arg Arg Arg Arg Ser Gln Ser Pro Arg Arg Arg Arg Ser Gln Ser Arg
195 200 205
Glu Ser Gln Cys
210

<210> 111
<211> 212
<212> PRT
<213> Hepatitis B virus

<220>
<221> UNSURE
<222> 28

<223> Xaa may be any amino acid.

<400> 111

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Gln | Leu | Phe | His | Leu | Cys | Leu | Ile | Ile | Ser | Cys | Ser | Cys | Pro | Thr |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | |
| Val | Gln | Ala | Ser | Lys | Leu | Cys | Leu | Gly | Trp | Leu | Xaa | Asp | Met | Asp | Ile |
| | | | 20 | | | | | 25 | | | | | 30 | | |
| Asp | Pro | Tyr | Lys | Glu | Phe | Gly | Ala | Thr | Val | Glu | Leu | Leu | Ser | Phe | Leu |
| | | 35 | | | | | 40 | | | | | 45 | | | |
| Pro | Ser | Asp | Phe | Phe | Pro | Ser | Val | Arg | Asp | Leu | Leu | Asp | Thr | Ala | Ser |
| | | 50 | | | | 55 | | | | | 60 | | | | |
| Ala | Leu | Tyr | Arg | Glu | Ala | Leu | Glu | Ser | Pro | Glu | His | Cys | Ser | Pro | His |
| 65 | | | | | 70 | | | | | 75 | | | | | 80 |
| His | Thr | Ala | Leu | Arg | Gln | Ala | Ile | Leu | Cys | Trp | Gly | Asp | Leu | Ile | Thr |
| | | | | 85 | | | | | 90 | | | | | 95 | |
| Leu | Ser | Thr | Trp | Val | Gly | Gly | Asn | Leu | Glu | Asp | Pro | Thr | Ser | Arg | Asp |
| | | | 100 | | | | | 105 | | | | | 110 | | |
| Leu | Val | Val | Ser | Tyr | Val | Asn | Thr | Asn | Met | Gly | Leu | Lys | Phe | Arg | Gln |
| | | 115 | | | | | 120 | | | | | 125 | | | |
| Leu | Leu | Trp | Phe | His | Ile | Ser | Cys | Leu | Thr | Phe | Gly | Arg | Glu | Thr | Val |
| | | 130 | | | | | 135 | | | | 140 | | | | |
| Ile | Glu | Tyr | Leu | Val | Ser | Phe | Gly | Val | Trp | Ile | Arg | Thr | Pro | Pro | Ala |
| 145 | | | | | 150 | | | | | 155 | | | | | 160 |
| Tyr | Arg | Pro | Pro | Asn | Ala | Pro | Ile | Leu | Ser | Thr | Leu | Pro | Glu | Thr | Thr |
| | | | | 165 | | | | | 170 | | | | | 175 | |
| Val | Val | Arg | Arg | Arg | Gly | Arg | Ser | Pro | Arg | Arg | Arg | Thr | Pro | Ser | Pro |
| | | | 180 | | | | | 185 | | | | | 190 | | |
| Arg | Arg | Arg | Arg | Ser | Gln | Ser | Pro | Arg | Arg | Arg | Arg | Thr | Gln | Ser | Arg |
| | | 195 | | | | | 200 | | | | | 205 | | | |
| Glu | Ser | Gln | Cys | | | | | | | | | | | | |
| | | 210 | | | | | | | | | | | | | |

<210> 112

<211> 212

<212> PRT

<213> Hepatitis B virus

<400> 112

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Gln | Leu | Phe | His | Leu | Cys | Leu | Ile | Ile | Ser | Cys | Ser | Cys | Pro | Thr |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | |
| Val | Gln | Ala | Ser | Lys | Leu | Cys | Leu | Gly | Trp | Leu | Trp | Gly | Met | Asp | Ile |
| | | | 20 | | | | | 25 | | | | | 30 | | |
| Asp | Pro | Tyr | Lys | Glu | Phe | Gly | Ala | Thr | Val | Glu | Leu | Leu | Ser | Phe | Leu |
| | | 35 | | | | | 40 | | | | | 45 | | | |

Pro Ser Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Asp Asn Ala Ser
50 55 60

Ala Leu Tyr Arg Glu Ala Leu Glu Ser Pro Glu His Cys Ser Pro His
65 70 75 80

His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Glu Leu Met Thr
85 90 95

Leu Ala Thr Trp Val Gly Val Asn Leu Glu Asp Pro Ala Ser Arg Asp
100 105 110

Leu Val Val Ser Tyr Val Asn Thr Asn Met Gly Leu Lys Phe Arg Gln
115 120 125

Leu Leu Trp Phe His Ile Ser Cys Leu Thr Phe Gly Arg Glu Thr Val
130 135 140

Ile Glu Tyr Leu Val Ser Phe Gly Val Trp Ile Arg Thr Pro Pro Ala
145 150 155 160

Tyr Arg Pro Pro Asn Ala Pro Ile Leu Ser Thr Leu Pro Glu Thr Thr
165 170 175

Val Val Arg Arg Arg Gly Arg Ser Pro Arg Arg Arg Thr Pro Ser Pro
180 185 190

Arg Arg Arg Arg Ser Gln Ser Pro Arg Arg Arg Arg Ser Gln Ser Arg
195 200 205

Glu Ser Gln Cys
210

<210> 113
<211> 212
<212> PRT
<213> Hepatitis B virus

<400> 113
Met Gln Leu Phe His Leu Cys Leu Ile Ile Ser Cys Ser Cys Pro Thr
1 5 10 15

Val Gln Ala Ser Lys Leu Cys Leu Gly Trp Leu Trp Gly Met Asp Ile
20 25 30

Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu Ser Phe Leu
35 40 45

Pro Ser Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Asp Thr Ala Ser
50 55 60

Ala Leu Tyr Arg Glu Ala Leu Glu Ser Pro Glu His Cys Ser Pro His
65 70 75 80

His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Glu Leu Met Thr
85 90 95

Leu Ala Thr Trp Val Gly Val Asn Leu Glu Asp Pro Ala Ser Arg Asp
100 105 110

Leu Val Val Ser Tyr Val Asn Thr Asn Met Gly Leu Lys Phe Arg Gln
 115 120 125

Leu Leu Trp Phe His Ile Cys Cys Leu Thr Phe Gly Arg Glu Thr Val
 130 135 140

Ile Glu Tyr Leu Val Ser Phe Gly Val Trp Ile Arg Thr Pro Pro Ala
 145 150 155 160

Tyr Arg Pro Pro Asn Ala Pro Ile Leu Ser Thr Leu Pro Glu Thr Thr
 165 170 175

Val Val Arg Arg Arg Gly Arg Ser Pro Arg Arg Arg Thr Pro Ser Pro
 180 185 190

Arg Arg Arg Arg Ser Gln Ser Pro Arg Arg Arg Arg Ser Gln Ser Arg
 195 200 205

Glu Ser Gln Cys
 210

<210> 114
 <211> 212
 <212> PRT
 <213> Hepatitis B virus

<400> 114
 Met Gln Leu Phe His Leu Cys Leu Ile Ile Ser Cys Ser Cys Pro Thr
 1 5 10 15

Val Gln Ala Ser Lys Leu Cys Leu Gly Trp Leu Trp Gly Met Asp Ile
 20 25 30

Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu Ser Phe Leu
 35 40 45

Pro Ser Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Asp Thr Ala Ser
 50 55 60

Ala Leu Tyr Arg Glu Ala Leu Glu Ser Pro Glu His Cys Ser Pro His
 65 70 75 80

His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Glu Leu Met Thr
 85 90 95

Leu Ala Thr Trp Val Gly Val Asn Leu Glu Asp Pro Ala Ser Arg Asp
 100 105 110

Leu Val Val Ser Tyr Val Asn Thr Asn Met Gly Leu Lys Phe Arg Gln
 115 120 125

Leu Leu Trp Phe His Ile Ser Cys Leu Thr Phe Gly Arg Glu Thr Val
 130 135 140

Ile Glu Tyr Leu Val Ser Phe Gly Val Trp Ile Arg Thr Pro Pro Ala
 145 150 155 160

Tyr Arg Pro Pro Asn Ala Pro Ile Leu Ser Thr Leu Pro Glu Thr Thr
 165 170 175

Val Val Arg Arg Arg Gly Arg Ser Pro Arg Arg Arg Thr Pro Ser Pro
180 185 190

Arg Arg Arg Arg Ser Gln Ser Pro Arg Arg Arg Arg Ser Gln Ser Arg
195 200 205

Glu Pro Gln Cys
210

<210> 115

<211> 212

<212> PRT

<213> Hepatitis B virus

<400> 115

Met Gln Leu Phe His Leu Cys Leu Ile Ile Ser Cys Ser Cys Pro Thr
1 5 10 15

Val Gln Ala Ser Lys Leu Cys Leu Gly Trp Leu Trp Gly Met Asp Ile
20 25 30

Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu Ser Phe Leu
35 40 45

Pro Ser Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Ser Thr Ala Ser
50 55 60

Ala Leu Tyr Arg Glu Ala Leu Glu Ser Pro Glu His Cys Ser Pro His
65 70 75 80

His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Glu Leu Met Thr
85 90 95

Leu Ala Thr Trp Val Gly Val Asn Leu Glu Asp Pro Ala Ser Arg Asp
100 105 110

Leu Val Val Ser Tyr Val Asn Thr Asn Met Gly Leu Lys Phe Arg Gln
115 120 125

Leu Leu Trp Phe His Ile Ser Cys Leu Thr Phe Gly Arg Glu Thr Val
130 135 140

Ile Glu Tyr Leu Val Ser Phe Gly Val Trp Ile Arg Thr Pro Pro Ala
145 150 155 160

Tyr Arg Pro Pro Asn Ala Pro Ile Leu Ser Thr Leu Pro Glu Thr Thr
165 170 175

Val Val Arg Arg Arg Gly Arg Ser Pro Arg Arg Arg Thr Pro Ser Pro
180 185 190

Arg Arg Arg Arg Ser Gln Ser Pro Arg Arg Arg Arg Ser Gln Ser Arg
195 200 205

Glu Ser Gln Cys
210

<210> 116
<211> 212
<212> PRT
<213> Hepatitis B virus

<400> 116
Met Gln Leu Phe His Leu Cys Leu Ile Ile Ser Cys Ser Cys Pro Thr
1 5 10 15
Val Gln Ala Ser Lys Leu Cys Leu Gly Trp Leu Trp Gly Met Asp Ile
20 25 30
Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu Ser Phe Leu
35 40 45
Pro Ser Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Asp Thr Ala Ser
50 55 60
Ala Leu Tyr Arg Glu Ala Leu Glu Ser Pro Glu His Cys Ser Pro His
65 70 75 80
His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Glu Leu Met Thr
85 90 95
Leu Ala Thr Trp Val Gly Val Asn Leu Glu Asp Pro Ala Ser Arg Asp
100 105 110
Leu Val Val Ser Tyr Val Asn Thr Asn Met Gly Leu Lys Phe Arg Gln
115 120 125
Leu Leu Trp Phe His Ile Ser Cys Leu Thr Phe Gly Arg Glu Thr Val
130 135 140
Ile Glu Tyr Leu Val Ser Phe Gly Val Trp Ile Arg Thr Pro Pro Ala
145 150 155 160
Tyr Arg Pro Pro Asn Ala Pro Ile Leu Leu Thr Leu Pro Glu Thr Thr
165 170 175
Val Val Arg Arg Arg Gly Arg Ser Pro Arg Arg Arg Thr Pro Ser Pro
180 185 190
Arg Arg Arg Arg Ser Gln Ser Pro Arg Arg Arg Arg Ser Gln Ser Arg
195 200 205
Glu Ser Gln Cys
210

<210> 117
<211> 212
<212> PRT
<213> Hepatitis B virus

<400> 117
Met Gln Leu Phe His Leu Cys Leu Ile Ile Ser Cys Ser Cys Pro Thr
1 5 10 15
Val Gln Ala Ser Lys Leu Cys Leu Gly Trp Leu Trp Gly Met Asp Ile
20 25 30

Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu Ser Phe Leu
35 40 45

Pro Ser Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Asp Thr Ala Ser
50 55 60

Ala Leu Tyr Arg Glu Ala Leu Glu Ser Pro Glu His Cys Ser Pro His
65 70 75 80

His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Asp Leu Met Thr
85 90 95

Leu Ala Thr Trp Val Gly Val Asn Leu Glu Asp Pro Ala Ser Arg Asp
100 105 110

Leu Val Val Ser Tyr Val Asn Thr Asn Met Gly Leu Lys Phe Lys Gln
115 120 125

Leu Leu Trp Phe His Ile Ser Cys Leu Thr Phe Gly Arg Glu Thr Val
130 135 140

Ile Glu Tyr Leu Val Ser Phe Gly Val Trp Ile Arg Thr Pro Pro Ala
145 150 155 160

Tyr Arg Pro Pro Asn Ala Pro Ile Leu Ser Thr Leu Pro Glu Thr Thr
165 170 175

Val Val Arg Arg Arg Gly Arg Ser Pro Arg Arg Arg Thr Pro Ser Pro
180 185 190

Arg Arg Arg Arg Ser Gln Ser Pro Arg Arg Arg Arg Ser Gln Ser Arg
195 200 205

Glu Ser Gln Cys
210

<210> 118
<211> 212
<212> PRT
<213> Hepatitis B virus

<400> 118
Met Gln Leu Phe His Leu Cys Leu Ile Ile Ser Cys Ser Cys Pro Thr
1 5 10 15

Val Gln Ala Ser Lys Leu Cys Leu Gly Trp Leu Trp Gly Met Asp Ile
20 25 30

Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu Ser Phe Leu
35 40 45

Pro Ser Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Asp Thr Ala Ala
50 55 60

Ala Leu Tyr Arg Asp Ala Leu Glu Ser Pro Glu His Cys Ser Pro His
65 70 75 80

His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Glu Leu Met Thr
85 90 95

Leu Ala Thr Trp Val Gly Thr Asn Leu Glu Asp Pro Ala Ser Arg Asp
100 105 110

Leu Val Val Ser Tyr Val Asn Thr Asn Met Gly Leu Lys Phe Arg Gln
115 120 125

Leu Leu Trp Phe His Ile Ser Cys Leu Thr Phe Gly Arg Glu Thr Val
130 135 140

Leu Glu Tyr Leu Val Ser Phe Gly Val Trp Ile Arg Thr Pro Pro Ala
145 150 155 160

Tyr Arg Pro Pro Asn Ala Pro Ile Leu Ser Thr Leu Pro Glu Thr Thr
165 170 175

Val Val Arg Arg Arg Gly Arg Ser Pro Arg Arg Arg Thr Pro Ser Pro
180 185 190

Arg Arg Arg Arg Ser Gln Ser Pro Arg Arg Arg Arg Ser Gln Ser Arg
195 200 205

Glu Ser Gln Cys
210

<210> 119

<211> 183

<212> PRT

<213> Hepatitis B virus

<400> 119

Met Asp Ile Asp Pro Tyr Lys Glu Phe Gly Ala Ser Met Glu Leu Leu
1 5 10 15

Ser Phe Leu Pro Ser Asp Phe Tyr Pro Ser Val Arg Asp Leu Leu Asp
20 25 30

Thr Ala Ser Ala Leu Tyr Arg Glu Ala Leu Glu Ser Pro Glu His Cys
35 40 45

Thr Pro His His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Glu
50 55 60

Leu Met Thr Leu Ala Thr Trp Val Gly Gly Asn Leu Gln Asp Pro Thr
65 70 75 80

Ser Arg Asp Leu Val Val Ser Tyr Val Asn Thr Asn Met Gly Leu Lys
85 90 95

Phe Arg Gln Leu Leu Trp Phe His Val Ser Cys Leu Thr Phe Gly Arg
100 105 110

Glu Thr Val Val Glu Tyr Leu Val Ser Phe Gly Val Trp Ile Arg Thr
115 120 125

Pro Gln Ala Tyr Arg Pro Pro Asn Ala Pro Ile Leu Ser Thr Leu Pro
130 135 140

Glu Thr Cys Val Val Arg Arg Arg Gly Arg Ser Pro Arg Arg Arg Thr
145 150 155 160

Pro Ser Pro Arg Arg Arg Arg Ser Gln Ser Pro Arg Arg Arg Arg Ser
165 170 175

Gln Ser Arg Glu Ser Gln Cys
180

<210> 120

<211> 183

<212> PRT

<213> Hepatitis B virus

<400> 120

Met Asp Ile Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu
1 5 10 15

Ser Phe Leu Pro Ser Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Asp
20 25 30

Thr Ala Ser Ala Leu Tyr Arg Glu Ala Leu Glu Ser Pro Glu His Cys
35 40 45

Ser Pro His His Thr Ala Leu Arg His Val Phe Leu Cys Trp Gly Asp
50 55 60

Leu Met Thr Leu Ala Thr Trp Val Gly Gly Asn Leu Glu Asp Pro Thr
65 70 75 80

Ser Arg Asp Leu Val Val Ser Tyr Val Asn Thr Asn Met Gly Leu Lys
85 90 95

Phe Arg Gln Leu Leu Trp Phe His Ile Ser Cys Leu Thr Phe Gly Arg
100 105 110

Glu Thr Val Ile Glu Tyr Leu Val Ser Phe Gly Val Trp Ile Arg Thr
115 120 125

Pro Pro Ala Tyr Arg Pro Pro Asn Ala Pro Ile Leu Ser Thr Leu Pro
130 135 140

Glu Thr Thr Val Val Arg Arg Arg Gly Arg Ser Pro Arg Arg Arg Thr
145 150 155 160

Pro Ser Pro Arg Arg Arg Arg Ser Gln Ser Pro Arg Arg Arg Arg Ser
165 170 175

Gln Ser Arg Glu Ser Gln Cys
180

<210> 121

<211> 212

<212> PRT

<213> Hepatitis B virus

<400> 121

Met Gln Leu Phe His Leu Cys Leu Ile Ile Ser Cys Ser Cys Pro Thr
1 5 10 15

Val Gln Ala Ser Lys Leu Cys Leu Gly Trp Leu Trp Gly Met Asp Ile
20 25 30

Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu Ser Phe Leu
 35 40 45
 Pro Ser Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Asp Thr Ala Ser
 50 55 60
 Ala Leu Tyr Arg Glu Ala Leu Glu Ser Pro Glu His Cys Ser Pro His
 65 70 75 80
 His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Asp Leu Thr Thr
 85 90 95
 Leu Ala Thr Trp Val Gly Val Asn Leu Glu Asp Pro Ala Ser Arg Asp
 100 105 110
 Leu Val Val Ser Tyr Val Asn Thr Asn Met Gly Leu Lys Phe Arg Gln
 115 120 125
 Leu Leu Trp Phe His Ile Ser Cys Leu Thr Phe Gly Arg Glu Thr Val
 130 135 140
 Ile Glu Tyr Leu Val Ser Phe Gly Val Trp Ile Arg Thr Pro Pro Ala
 145 150 155 160
 Tyr Arg Pro Pro Asn Ala Pro Ile Leu Ser Thr Leu Pro Glu Thr Thr
 165 170 175
 Val Val Arg Arg Arg Gly Arg Ser Pro Arg Arg Arg Thr Pro Ser Pro
 180 185 190
 Arg Arg Arg Arg Ser Gln Ser Pro Arg Arg Arg Arg Ser Gln Ser Arg
 195 200 205
 Glu Ser Gln Cys
 210

<210> 122

<211> 212

<212> PRT

<213> Hepatitis B virus

<400> 122

Met Gln Leu Phe His Leu Cys Leu Ile Ile Ser Cys Ser Cys Pro Thr
 1 5 10 15
 Val Gln Ala Ser Lys Leu Cys Leu Gly Trp Leu Trp Gly Met Asp Ile
 20 25 30
 Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu Ser Phe Leu
 35 40 45
 Pro Ser Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Asp Thr Ala Ser
 50 55 60
 Ala Leu Tyr Arg Asp Ala Leu Glu Ser Pro Glu His Cys Ser Pro His
 65 70 75 80
 His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Glu Leu Met Thr
 85 90 95

Leu Ala Thr Trp Val Gly Val Asn Leu Glu Asp Pro Ala Ser Arg Asp
100 105 110

Leu Val Val Ser Tyr Val Asn Thr Asn Met Gly Leu Lys Phe Arg Gln
115 120 125

Leu Leu Trp Phe His Ile Ser Cys Leu Ile Phe Gly Arg Glu Thr Val
130 135 140

Ile Glu Tyr Leu Val Ser Phe Gly Val Trp Ile Arg Thr Pro Pro Ala
145 150 155 160

Tyr Arg Pro Pro Asn Ala Pro Ile Leu Ser Thr Leu Pro Glu Thr Thr
165 170 175

Val Val Arg Arg Arg Gly Arg Ser Pro Arg Arg Arg Thr Pro Ser Pro
180 185 190

Arg Arg Arg Arg Ser Gln Ser Pro Arg Arg Arg Arg Ser Gln Ser Arg
195 200 205

Glu Ser Gln Cys
210

<210> 123
<211> 183
<212> PRT
<213> Hepatitis B virus

<400> 123
Met Asp Ile Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu
1 5 10 15

Ser Phe Leu Pro Ser Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Asp
20 25 30

Thr Ala Ser Ala Leu Tyr Arg Glu Ala Leu Glu Ser Pro Glu His Cys
35 40 45

Ser Pro His His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Asp
50 55 60

Leu Met Thr Leu Ala Thr Trp Val Gly Val Asn Leu Glu Asp Pro Val
65 70 75 80

Ser Arg Asp Leu Val Val Ser Tyr Val Asn Thr Asn Val Gly Leu Lys
85 90 95

Phe Arg Gln Leu Leu Trp Phe His Ile Ser Cys Leu Thr Phe Gly Arg
100 105 110

Glu Thr Val Ile Glu Tyr Leu Val Ser Phe Gly Val Trp Ile Arg Thr
115 120 125

Pro Pro Ala Tyr Arg Pro Pro Asn Ala Pro Ile Leu Ser Thr Leu Pro
130 135 140

Glu Thr Thr Val Val Arg Arg Arg Gly Arg Ser Pro Arg Arg Arg Thr
145 150 155 160

Pro Ser Pro Ala Arg Arg Arg Ser Gln Ser Pro Arg Arg Arg Arg Ser
165 170 175

Gln Ser Arg Glu Ser Gln Cys
180

<210> 124

<211> 212

<212> PRT

<213> Hepatitis B virus

<400> 124

Met Gln Leu Phe His Leu Cys Leu Ile Ile Ser Cys Ser Cys Pro Thr
1 5 10 15

Val Gln Ala Ser Lys Leu Cys Leu Gly Trp Leu Trp Gly Met Asp Ile
20 25 30

Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu Ser Phe Leu
35 40 45

Pro Ser Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Asp Thr Ala Ser
50 55 60

Ala Leu Tyr Arg Glu Ala Leu Glu Ser Pro Glu His Cys Ser Pro His
65 70 75 80

His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Asp Leu Met Asn
85 90 95

Leu Ala Thr Trp Val Gly Gly Asn Leu Glu Asp Pro Val Ser Arg Asp
100 105 110

Leu Val Val Gly Tyr Val Asn Thr Thr Val Gly Leu Lys Phe Arg Gln
115 120 125

Leu Leu Trp Phe His Ile Ser Cys Leu Thr Phe Gly Arg Glu Thr Val
130 135 140

Ile Glu Tyr Leu Val Ser Phe Gly Val Trp Ile Arg Thr Pro Pro Ala
145 150 155 160

Tyr Arg Pro Pro Asn Ala Pro Ile Leu Ser Thr Leu Pro Glu Thr Thr
165 170 175

Val Val Arg Arg Arg Gly Arg Ser Pro Arg Arg Arg Thr Pro Ser Pro
180 185 190

Arg Arg Arg Arg Ser Gln Ser Pro Arg Arg Arg Arg Ser Gln Ser Arg
195 200 205

Glu Ser Gln Cys
210

<210> 125

<211> 183

<212> PRT

<213> Hepatitis B virus

<400> 125

Met Asp Ile Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu
1 5 10 15
Ser Phe Leu Pro Ser Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Asp
20 25 30
Thr Ala Ser Ala Leu Tyr Arg Asp Ala Leu Glu Ser Pro Glu His Cys
35 40 45
Ser Pro His His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Asp
50 55 60
Leu Met Thr Leu Ala Thr Trp Val Gly Val Asn Leu Glu Asp Pro Ala
65 70 75 80
Ser Arg Asp Leu Val Val Ser Tyr Val Asn Thr Asn Met Gly Leu Lys
85 90 95
Phe Arg Gln Leu Leu Trp Phe His Ile Ser Cys Leu Thr Phe Gly Arg
100 105 110
Glu Thr Val Ile Glu Tyr Leu Val Ser Phe Gly Val Trp Ile Arg Thr
115 120 125
Pro Pro Ala Tyr Arg Pro Pro Asn Ala Pro Ile Leu Ser Thr Leu Pro
130 135 140
Glu Thr Thr Val Val Arg Arg Arg Gly Arg Thr Pro Arg Arg Arg Thr
145 150 155 160
Pro Ser Pro Arg Arg Arg Arg Ser Gln Ser Pro Arg Arg Arg Arg Ser
165 170 175
Gln Ser Arg Glu Ser Gln Cys
180

<210> 126

<211> 212

<212> PRT

<213> Hepatitis B virus

<400> 126

Met Gln Leu Phe His Leu Cys Leu Ile Ile Ser Cys Ser Cys Pro Thr
1 5 10 15
Val Gln Ala Ser Lys Leu Cys Leu Gly Trp Leu Trp Gly Met Asp Ile
20 25 30
Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu Ser Phe Leu
35 40 45
Pro Ser Asp Phe Phe Pro Ser Val Arg Ala Leu Leu Asp Thr Ala Ser
50 55 60
Ala Leu Tyr Arg Glu Ala Leu Glu Ser Pro Glu His Cys Ser Pro His
65 70 75 80
His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Glu Leu Met Thr

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| | | | | 85 | | | | 90 | | | | 95 | | | |
| Leu | Ala | Thr | Trp | Val | Gly | Val | Asn | Leu | Glu | Asp | Pro | Ala | Ser | Arg | Asp |
| 100 | | | | | | | | 105 | | | | 110 | | | |
| Leu | Val | Val | Ser | Tyr | Val | Asn | Thr | Asn | Met | Gly | Leu | Lys | Phe | Arg | Gln |
| 115 | | | | | | | | 120 | | | | 125 | | | |
| Ile | Leu | Trp | Phe | His | Ile | Ser | Cys | Leu | Thr | Phe | Gly | Arg | Glu | Thr | Val |
| 130 | | | | | | | | 135 | | | | 140 | | | |
| Ile | Glu | Tyr | Leu | Val | Ser | Phe | Gly | Val | Trp | Ile | Arg | Thr | Pro | Pro | Ala |
| 145 | | | | | | | | 150 | | | | 155 | | | |
| Tyr | Arg | Pro | Pro | Asn | Ala | Pro | Ile | Leu | Ser | Thr | Leu | Pro | Glu | Thr | Thr |
| | | | | 165 | | | | | | | | 170 | | | |
| Val | Val | Arg | Arg | Arg | Gly | Arg | Ser | Pro | Arg | Arg | Arg | Thr | Pro | Ser | Pro |
| | | | | 180 | | | | | | | | 185 | | | |
| Arg | Arg | Arg | Arg | Ser | Gln | Ser | Pro | Arg | Arg | Arg | Arg | Ser | Gln | Ser | Arg |
| | | | | 195 | | | | | | | | 200 | | | |
| Glu | Ser | Gln | Cys | | | | | | | | | | | | |
| 210 | | | | | | | | | | | | | | | |

```
<210> 127
<211> 212
<212> PRT
<213> Hepatitis B virus
```

| | | | | | | | | | | | | | | | | |
|-----------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|
| <400> 127 | | | | | | | | | | | | | | | | |
| Met | Gln | Leu | Phe | His | Leu | Cys | Leu | Ile | Ile | Ser | Cys | Ser | Cys | Pro | Thr | |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | | |
| Val | Gln | Ala | Ser | Lys | Leu | Cys | Leu | Gly | Trp | Leu | Trp | Gly | Met | Asp | Ile | |
| | | | 20 | | | | | 25 | | | | | 30 | | | |
| Asp | Pro | Tyr | Lys | Glu | Phe | Gly | Ala | Thr | Val | Glu | Leu | Leu | Ser | Phe | Leu | |
| | | 35 | | | | | 40 | | | | | 45 | | | | |
| Pro | Ser | Asp | Phe | Phe | Pro | Ser | Val | Arg | Asp | Leu | Leu | Asp | Thr | Ala | Ser | |
| | 50 | | | | | 55 | | | | | | 60 | | | | |
| Ala | Leu | Tyr | Arg | Glu | Ala | Leu | Glu | Ser | Pro | Glu | His | Cys | Ser | Pro | His | |
| 65 | | | | | 70 | | | | | 75 | | | | | 80 | |
| His | Thr | Ala | Leu | Arg | Gln | Ala | Ile | Leu | Cys | Trp | Gly | Asp | Leu | Met | Thr | |
| | | | | 85 | | | | | 90 | | | | | 95 | | |
| Leu | Ala | Thr | Trp | Val | Gly | Val | Asn | Leu | Glu | Asp | Pro | Ala | Thr | Arg | Asp | |
| | | | 100 | | | | | 105 | | | | | 110 | | | |
| Leu | Val | Val | Ser | Tyr | Val | Asn | Thr | Asn | Val | Gly | Leu | Lys | Phe | Arg | Gln | |
| | | 115 | | | | | 120 | | | | | 125 | | | | |
| Leu | Leu | Trp | Phe | His | Ile | Ser | Cys | Leu | Thr | Phe | Gly | Arg | Glu | Thr | Val | |
| | 130 | | | | | 135 | | | | | 140 | | | | | |
| Ile | Glu | Tyr | Leu | Val | Ser | Phe | Gly | Val | Trp | Ile | Arg | Thr | Pro | Pro | Ala | |

| | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|
| 145 | | | | 150 | | | | 155 | | | | 160 | | | | |
| Tyr | Arg | Pro | Pro | Asn | Ala | Pro | Ile | Leu | Ser | Thr | Leu | Pro | Glu | Thr | Thr | |
| | | | | 165 | | | | | 170 | | | | | 175 | | |
| Val | Val | Arg | Arg | Arg | Gly | Arg | Ser | Pro | Arg | Arg | Arg | Thr | Pro | Ser | Pro | |
| | | | | 180 | | | | | 185 | | | | | 190 | | |
| Arg | Arg | Arg | Arg | Ser | Gln | Ser | Pro | Arg | Arg | Arg | Arg | Ser | Gln | Ser | Arg | |
| | | | | 195 | | | | | 200 | | | | | 205 | | |
| Glu | Ser | Gln | Cys | | | | | | | | | | | | | |
| | | | | 210 | | | | | | | | | | | | |

```
<210> 128
<211> 212
<212> PRT
<213> Hepatitis B virus
```

[illegible]

210

<210> 129
<211> 212
<212> PRT
<213> Hepatitis B virus

<400> 129
Met Gln Leu Phe His Leu Cys Leu Val Ile Ser Cys Ser Cys Pro Thr
1 5 10 15
Val Gln Ala Ser Lys Leu Cys Leu Gly Trp Leu Trp Gly Met Asp Ile
20 25 30
Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu Ser Phe Leu
35 40 45
Pro Ser Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Asp Thr Ala Ala
50 55 60
Ala Leu Tyr Arg Glu Ala Leu Glu Ser Pro Glu His Cys Ser Pro His
65 70 75 80
His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Glu Leu Met Thr
85 90 95
Leu Ala Thr Trp Val Gly Asn Asn Leu Glu Asp Pro Ala Ser Arg Asp
100 105 110
Leu Val Val Asn Tyr Val Asn Thr Asn Met Gly Leu Lys Ile Arg Gln
115 120 125
Leu Leu Trp Phe His Ile Ser Cys Leu Thr Phe Gly Arg Glu Thr Val
130 135 140
Leu Glu Tyr Leu Val Ser Phe Gly Val Trp Ile Arg Thr Pro Pro Ala
145 150 155 160
Tyr Arg Pro Pro Asn Ala Pro Ile Leu Ser Thr Leu Pro Glu Thr Thr
165 170 175
Val Val Arg Arg Arg Gly Arg Ser Pro Arg Arg Arg Thr Pro Ser Pro
180 185 190
Arg Arg Arg Arg Ser Gln Ser Pro Arg Arg Arg Arg Ser Gln Ser Arg
195 200 205
Glu Ser Gln Cys
210

<210> 130
<211> 212
<212> PRT
<213> Hepatitis B virus

<400> 130
Met Gln Leu Phe His Leu Cys Leu Ile Ile Ser Cys Ser Cys Pro Thr
1 5 10 15

| | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|
| Val | Gln | Ala | Ser | Lys | Leu | Cys | Leu | Gly | Trp | Leu | Trp | Gly | Met | Asp | Ile | |
| | | | 20 | | | | | 25 | | | | | 30 | | | |
| Asp | Pro | Tyr | Lys | Glu | Phe | Gly | Ala | Thr | Val | Glu | Leu | Leu | Ser | Phe | Leu | |
| | | 35 | | | | | 40 | | | | | 45 | | | | |
| Pro | Ser | Ala | Phe | Phe | Pro | Ser | Val | Arg | Asp | Leu | Leu | Asp | Thr | Ala | Ser | |
| | 50 | | | | | 55 | | | | | 60 | | | | | |
| Ala | Leu | Tyr | Arg | Glu | Ala | Leu | Glu | Ser | Pro | Glu | His | Cys | Ser | Pro | His | |
| 65 | | | | | 70 | | | | | 75 | | | | | 80 | |
| His | Thr | Ala | Leu | Arg | Gln | Ala | Ile | Leu | Cys | Trp | Gly | Asp | Leu | Met | Thr | |
| | | | 85 | | | | | | 90 | | | | | 95 | | |
| Leu | Ala | Thr | Trp | Val | Gly | Val | Asn | Leu | Glu | Asp | Pro | Ala | Ser | Arg | Asp | |
| | | | 100 | | | | | 105 | | | | | 110 | | | |
| Leu | Val | Val | Ser | Tyr | Val | Asn | Thr | Asn | Met | Gly | Leu | Lys | Phe | Arg | Gln | |
| | | 115 | | | | | 120 | | | | | 125 | | | | |
| Leu | Leu | Trp | Phe | His | Ile | Ser | Cys | Leu | Thr | Phe | Gly | Arg | Glu | Thr | Val | |
| | 130 | | | | | 135 | | | | | 140 | | | | | |
| Ile | Glu | Tyr | Leu | Val | Ser | Phe | Gly | Val | Trp | Ile | Arg | Thr | Pro | Pro | Ala | |
| 145 | | | | | 150 | | | | | 155 | | | | | 160 | |
| Tyr | Arg | Pro | Pro | Asn | Ala | Pro | Ile | Leu | Ser | Thr | Leu | Pro | Glu | Thr | Thr | |
| | | | | 165 | | | | | 170 | | | | | 175 | | |
| Val | Val | Arg | Arg | Arg | Gly | Arg | Ser | Pro | Arg | Arg | Arg | Thr | Pro | Ser | Pro | |
| | | | 180 | | | | | 185 | | | | | 190 | | | |
| Arg | Arg | Arg | Arg | Ser | Gln | Ser | Pro | Arg | Arg | Arg | Arg | Ser | Gln | Ser | Arg | |
| | | 195 | | | | | 200 | | | | | 205 | | | | |
| Glu | Ser | Gln | Cys | | | | | | | | | | | | | |
| | 210 | | | | | | | | | | | | | | | |

<210> 131
 <211> 183
 <212> PRT
 <213> Hepatitis B virus

<400> 131

| | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|
| Met | Asp | Ile | Asp | Pro | Tyr | Lys | Glu | Phe | Gly | Ala | Thr | Val | Glu | Leu | Leu | |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | | |
| Ser | Phe | Leu | Pro | Ser | Asp | Phe | Phe | Pro | Ser | Val | Arg | Asp | Leu | Leu | Asp | |
| | | | 20 | | | | | 25 | | | | | 30 | | | |
| Thr | Ala | Ala | Ala | Leu | Tyr | Arg | Glu | Ala | Leu | Glu | Ser | Pro | Glu | His | Cys | |
| | | 35 | | | | | 40 | | | | | 45 | | | | |
| Ser | Pro | His | His | Thr | Ala | Leu | Arg | Gln | Ala | Ile | Leu | Cys | Trp | Gly | Glu | |
| | 50 | | | | | 55 | | | | | 60 | | | | | |
| Leu | Met | Thr | Leu | Ala | Thr | Trp | Val | Gly | Asn | Asn | Leu | Glu | Asp | Pro | Ala | |
| 65 | | | | | 70 | | | | | 75 | | | | | 80 | |

Ser Arg Asp Leu Val Val Asn Tyr Val Asn Thr Asn Met Gly Leu Lys
85 90 95

Ile Arg Gln Leu Leu Trp Phe His Ile Ser Cys Leu Thr Phe Gly Arg
100 105 110

Glu Thr Val Leu Glu Tyr Leu Val Ser Phe Gly Val Trp Ile Arg Thr
115 120 125

Pro Pro Ala Tyr Arg Pro Pro Asn Ala Pro Ile Leu Ser Thr Leu Pro
130 135 140

Glu Thr Thr Val Val Arg Arg Arg Gly Arg Ser Pro Arg Arg Arg Thr
145 150 155 160

Pro Ser Pro Arg Arg Arg Arg Ser Gln Ser Pro Arg Arg Arg Arg Ser
165 170 175

Gln Ser Arg Glu Ser Gln Cys
180

<210> 132
<211> 183
<212> PRT
<213> Hepatitis B virus

<400> 132

Met Asp Ile Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu
1 5 10 15

Ser Phe Leu Pro Ser Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Asp
20 25 30

Thr Ala Ser Ala Leu Tyr Arg Glu Ala Leu Glu Ser Pro Glu His Cys
35 40 45

Ser Pro His His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Glu
50 55 60

Leu Met Thr Leu Ala Thr Trp Val Gly Gly Asn Leu Glu Asp Pro Ile
65 70 75 80

Ser Arg Asp Leu Val Val Ser Tyr Val Asn Thr Asn Met Gly Leu Lys
85 90 95

Phe Arg Gln Leu Leu Trp Phe His Ile Ser Cys Leu Thr Phe Gly Arg
100 105 110

Glu Thr Val Ile Glu Tyr Leu Val Ser Phe Gly Val Trp Ile Arg Thr
115 120 125

Pro Pro Ala Tyr Arg Pro Pro Asn Ala Pro Ile Leu Ser Thr Leu Pro
130 135 140

Glu Thr Cys Val Val Arg Arg Arg Gly Arg Ser Pro Arg Arg Arg Thr
145 150 155 160

Pro Ser Pro Arg Arg Arg Arg Ser Gln Ser Pro Arg Arg Arg Arg Ser
165 170 175

Gln Ser Arg Gly Ser Gln Cys
180

<210> 133
<211> 3221
<212> DNA
<213> Hepatitis B virus

<220>
<221> CDS
<222> (1901) .. (2458)

<400> 133
ttccactgcc ttccaccaag ctctgcagga cccagagtc aggggtctgt attttcctgc 60
tggtgggtcc agttcaggaa cagtaaacc tgctccgaat attgcctctc acatctctgc 120
aatctccgcg aggactgggg accctgtgac gaacatggag aacatcacat caggattcct 180
aggaccctct ctctgtttac agggggggtt tttattgttg acaagaatcc tcacaatacc 240
gcagagtcta gactcgtggt ggacttctct caattttata gggggatcac ccgtgtgtct 300
tggccaaaat tcgcagtccc caacctccaa tcactcacca acctcctgtc ctccaatttg 360
tcttggttat cgctggatgt gtctgcggtt tttatcata ttctcttca tctgtctgt 420
atgcctcatc ttcttattgg ttcttctgga ttatcaaggt atgttgccc tttgtcctct 480
aattccagga tcaacaacaa ccagtacggg accatgcaaa acctgcacga ctctgtctca 540
aggcaactct atgtttccct catgttgctg tacaaaacct acggttgga attgcacctg 600
tattcccatc ccatcgtcct gggctttctc aaaataccta tgggagtggg cctcagtccg 660
tttctcttgg ctcagtttac tagtgccatt tgttcagtgg ttcgtagggc tttccccac 720
tgtttggtt tcagctatat ggatgatgtg gtattggggg ccaagtctgt acagcatcgt 780
gagtccttt ataccgctgt taccaatttt cttttgtctc tgggtataca tttaaacct 840
aacaaaacaa aaagatgggg ttattcccta aacttcatgg gttacataat tggaagttgg 900
ggaacattgc cacaggatca tattgtacaa aagatcaaac actgttttag aaaacttct 960
gttaacaggc ctattgattg gaaagtatgt caaagaattg tgggtctttt gggctttgct 1020
gctccattta cacaatgtgg atatcctgcc ttaatgcctt tgtatgcatg tatacaggct 1080
aaacaggctt tcactttctc gccaaacttac aaggcctttc taagtaaaca gtacatgaac 1140
ctttaccccg ttgctcggca acggcctggt ctgtgccaaag tgtttgctga cgcaaccccc 1200
actgggtggg gcttggtccat aggccatcag cgcagtgtg gaacctttgt ggctcctctg 1260
ccgatccata ctgcggaact cctagccgct tgtattgtct gcagccggtc tggagcaaag 1320
ctcatcgga ctgacaattc tctcgtctc tcgcggaaat atacatcgtt tccatggctg 1380
ctaggctgta ctgccaactg gatccttctc gggacgtcct ttgtttacgt cccgtcggcg 1440

ctgaatcccc eggacgaccc ctctcggggc cgcttggggac tctatcgtcc ccttctccgt 1500
ctgccgttcc agccgaccac ggggcgcacc tctcttttacg cggctctcccc gtctgtgcct 1560
tctcatctgc cgggtccgtgt gcacttcgct tcacctctgc acgttgcatg gagaccaccg 1620
tgaacgcccc tcagatcctg cccaaggtct tacataagag gactcttgga ctcccagcaa 1680
tgtcaacgac cgaccttgag gcctacttca aagactgtgt gtttaaggac tgggaggagc 1740
tgggggagga gattagggtta aaggtctttg tattaggagg ctgtaggcat aaattggtct 1800
gcgcaccagc accatgcaac tttttcacct ctgcctaadc atctcttgta catgtccac 1860
tggtcaagcc tccaagctgt gccttgggtg gctttggggc atg gac att gac cct 1915
Met Asp Ile Asp Pro
1 5
tat aaa gaa ttt gga gct act gtg gag tta ctc tcg ttt ttg cct tct 1963
Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu Ser Phe Leu Pro Ser
10 15 20
gac ttc ttt cct tcc gtc aga gat ctc cta gac acc gcc tca gct ctg 2011
Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Asp Thr Ala Ser Ala Leu
25 30 35
tat cga gaa gcc tta gag tct cct gag cat tgc tca cct cac cat act 2059
Tyr Arg Glu Ala Leu Glu Ser Pro Glu His Cys Ser Pro His His Thr
40 45 50
gca ctc agg caa gcc att ctc tgc tgg ggg gaa ttg atg act cta gct 2107
Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Glu Leu Met Thr Leu Ala
55 60 65
acc tgg gtg ggt aat aat ttg gaa gat cca gca tcc agg gat cta gta 2155
Thr Trp Val Gly Asn Asn Leu Glu Asp Pro Ala Ser Arg Asp Leu Val
70 75 80 85
gtc aat tat gtt aat act aac atg ggt tta aag atc agg caa cta ttg 2203
Val Asn Tyr Val Asn Thr Asn Met Gly Leu Lys Ile Arg Gln Leu Leu
90 95 100
tgg ttt cat ata tct tgc ctt act ttt gga aga gag act gta ctt gaa 2251
Trp Phe His Ile Ser Cys Leu Thr Phe Gly Arg Glu Thr Val Leu Glu
105 110 115
tat ttg gtc tct ttc gga gtg tgg att cgc act cct cca gcc tat aga 2299
Tyr Leu Val Ser Phe Gly Val Trp Ile Arg Thr Pro Pro Ala Tyr Arg
120 125 130
cca cca aat gcc cct atc tta tca aca ctt ccg gaa act act gtt gtt 2347
Pro Pro Asn Ala Pro Ile Leu Ser Thr Leu Pro Glu Thr Thr Val Val
135 140 145
aga cga cgg gac cga ggc agg tcc cct aga aga aga act ccc tcg cct 2395
Arg Arg Arg Asp Arg Gly Arg Ser Pro Arg Arg Arg Thr Pro Ser Pro
150 155 160 165
cgc aga cgc aga tct caa tcg ccg cgt cgc aga aga tct caa tct cgg 2443
Arg Arg Arg Arg Ser Gln Ser Pro Arg Arg Arg Arg Ser Gln Ser Arg

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                170                175                180
gaa tct caa tgt tag tattccttgg actcataagg tgggaaactt tactgggctt 2498
Glu Ser Gln Cys
                185

tattcctcta cagtacctat ctttaatcct gaatggcaaaa ctccttcctt tcctaagatt 2558

catttacaag aggacattat tgataggtgt caacaatttg tgggccctct cactgtaaatt 2618

gaaaagagaa gattgaaatt aattatgcct gctagattct atcctacca cactaaatat 2678

ttgcccttag acaaaggaat taaaccttat tatccagatc aggtagttaa tcattacttc 2738

caaaccagac attatttaca tactcttttg aaggctggta ttctatataa gagggaaacc 2798

acacgtagcg catcattttg cgggtcacca tattcttggg aacaagagct acagcatggg 2858

aggttgggtca ttaaaacctc gcaaaggcat ggggacgaat ctttctgttc ccaaccctct 2918

gggattcttt cccgatcatc agttggaccc tgcattcgga gccaactcaa acaatccaga 2978

ttgggacttc aaccccatca aggaccactg gccagcagcc aaccaggtag gagtgggagc 3038

attcggggcca gggctcacc ctcacacagg cggtattttg ggggtggagcc ctcaggctca 3098

gggcatattg accacagtgt caacaattcc tctcctgcc tccaccaatc ggcagtcagg 3158

aaggcagcct actcccatct ctccacctct aagagacagt catcctcagg ccatgcagtg 3218

gaa 3221

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<210> 134
 <211> 185
 <212> PRT
 <213> Hepatitis B virus

```

<400> 134
Met Asp Ile Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu
  1             5             10             15
Ser Phe Leu Pro Ser Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Asp
          20          25          30
Thr Ala Ser Ala Leu Tyr Arg Glu Ala Leu Glu Ser Pro Glu His Cys
          35          40          45
Ser Pro His His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Glu
  50          55          60
Leu Met Thr Leu Ala Thr Trp Val Gly Asn Asn Leu Glu Asp Pro Ala
  65          70          75          80
Ser Arg Asp Leu Val Val Asn Tyr Val Asn Thr Asn Met Gly Leu Lys
          85          90          95
Ile Arg Gln Leu Leu Trp Phe His Ile Ser Cys Leu Thr Phe Gly Arg
          100         105         110
Glu Thr Val Leu Glu Tyr Leu Val Ser Phe Gly Val Trp Ile Arg Thr
          115         120         125
Pro Pro Ala Tyr Arg Pro Pro Asn Ala Pro Ile Leu Ser Thr Leu Pro
          130         135         140
Glu Thr Thr Val Val Arg Arg Arg Asp Arg Gly Arg Ser Pro Arg Arg
145          150          155          160
Arg Thr Pro Ser Pro Arg Arg Arg Arg Ser Gln Ser Pro Arg Arg Arg
          165          170          175

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Arg Ser Gln Ser Arg Glu Ser Gln Cys
180 185

<210> 135
<211> 188
<212> PRT
<213> Woodchuck hepatitis B virus

<400> 135
Met Asp Ile Asp Pro Tyr Lys Glu Phe Gly Ser Ser Tyr Gln Leu Leu
1 5 10 15
Asn Phe Leu Pro Leu Asp Phe Phe Pro Asp Leu Asn Ala Leu Val Asp
20 25 30
Thr Ala Thr Ala Leu Tyr Glu Glu Glu Leu Thr Gly Arg Glu His Cys
35 40 45
Ser Pro His His Thr Ala Ile Arg Gln Ala Leu Val Cys Trp Asp Glu
50 55 60
Leu Thr Lys Leu Ile Ala Trp Met Ser Ser Asn Ile Thr Ser Glu Gln
65 70 75 80
Val Arg Thr Ile Ile Val Asn His Val Asn Asp Thr Trp Gly Leu Lys
85 90 95
Val Arg Gln Ser Leu Trp Phe His Leu Ser Cys Leu Thr Phe Gly Gln
100 105 110
His Thr Val Gln Glu Phe Leu Val Ser Phe Gly Val Trp Ile Arg Thr
115 120 125
Pro Ala Pro Tyr Arg Pro Pro Asn Ala Pro Ile Leu Ser Thr Leu Pro
130 135 140
Glu His Thr Val Ile Arg Arg Arg Gly Gly Ala Arg Ala Ser Arg Ser
145 150 155 160
Pro Arg Arg Arg Thr Pro Ser Pro Arg Arg Arg Arg Ser Gln Ser Pro
165 170 175
Arg Arg Arg Arg Ser Gln Ser Pro Ser Thr Asn Cys
180 185

<210> 136
<211> 217
<212> PRT
<213> Ground squirrel hepatitis virus

<400> 136
Met Tyr Leu Phe His Leu Cys Leu Val Phe Ala Cys Val Pro Cys Pro
1 5 10 15
Thr Val Gln Ala Ser Lys Leu Cys Leu Gly Trp Leu Trp Asp Met Asp
20 25 30
Ile Asp Pro Tyr Lys Glu Phe Gly Ser Ser Tyr Gln Leu Leu Asn Phe

| | | |
|---|-----|-----|
| 35 | 40 | 45 |
| Leu Pro Leu Asp Phe Phe Pro Asp Leu Asn Ala Leu Val Asp Thr Ala | | |
| 50 | 55 | 60 |
| Ala Ala Leu Tyr Glu Glu Glu Leu Thr Gly Arg Glu His Cys Ser Pro | | |
| 65 | 70 | 75 |
| His His Thr Ala Ile Arg Gln Ala Leu Val Cys Trp Glu Glu Leu Thr | | |
| | 85 | 90 |
| Arg Leu Ile Thr Trp Met Ser Glu Asn Thr Thr Glu Glu Val Arg Arg | | |
| | 100 | 105 |
| Ile Ile Val Asp His Val Asn Asn Thr Trp Gly Leu Lys Val Arg Gln | | |
| | 115 | 120 |
| Thr Leu Trp Phe His Leu Ser Cys Leu Thr Phe Gly Gln His Thr Val | | |
| | 130 | 135 |
| Gln Glu Phe Leu Val Ser Phe Gly Val Trp Ile Arg Thr Pro Ala Pro | | |
| | 145 | 150 |
| Tyr Arg Pro Pro Asn Ala Pro Ile Leu Ser Thr Leu Pro Glu His Thr | | |
| | 165 | 170 |
| Val Ile Arg Arg Arg Gly Gly Ser Arg Ala Ala Arg Ser Pro Arg Arg | | |
| | 180 | 185 |
| Arg Thr Pro Ser Pro Arg Arg Arg Arg Ser Gln Ser Pro Arg Arg Arg | | |
| | 195 | 200 |
| Arg Ser Gln Ser Pro Ala Ser Asn Cys | | |
| | 210 | 215 |

<210> 137
 <211> 262
 <212> PRT
 <213> Snow Goose Hepatitis B Virus

| |
|---|
| <400> 137 |
| Met Asp Val Asn Ala Ser Arg Ala Leu Ala Asn Val Tyr Asp Leu Pro |
| 1 5 10 15 |
| Asp Asp Phe Phe Pro Lys Ile Glu Asp Leu Val Arg Asp Ala Lys Asp |
| 20 25 30 |
| Ala Leu Glu Pro Tyr Trp Lys Ser Asp Ser Ile Lys Lys His Val Leu |
| 35 40 45 |
| Ile Ala Thr His Phe Val Asp Leu Ile Glu Asp Phe Trp Gln Thr Thr |
| 50 55 60 |
| Gln Gly Met His Glu Ile Ala Glu Ala Ile Arg Ala Val Ile Pro Pro |
| 65 70 75 80 |
| Thr Thr Ala Pro Val Pro Ser Gly Tyr Leu Ile Gln His Asp Glu Ala |
| 85 90 95 |
| Glu Glu Ile Pro Leu Gly Asp Leu Phe Lys Glu Gln Glu Glu Arg Ile |

| 100 | | | | | 105 | | | | | 110 | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Val | Ser | Phe | Gln | Pro | Asp | Tyr | Pro | Ile | Thr | Ala | Arg | Ile | His | Ala | His |
| | | 115 | | | | | 120 | | | | | 125 | | | |
| Leu | Lys | Ala | Tyr | Ala | Lys | Ile | Asn | Glu | Glu | Ser | Leu | Asp | Arg | Ala | Arg |
| | 130 | | | | | 135 | | | | | 140 | | | | |
| Arg | Leu | Leu | Trp | Trp | His | Tyr | Asn | Cys | Leu | Leu | Trp | Gly | Glu | Ala | Thr |
| 145 | | | | | 150 | | | | | 155 | | | | | 160 |
| Val | Thr | Asn | Tyr | Ile | Ser | Arg | Leu | Arg | Thr | Trp | Leu | Ser | Thr | Pro | Glu |
| | | | | 165 | | | | | 170 | | | | | 175 | |
| Lys | Tyr | Arg | Gly | Arg | Asp | Ala | Pro | Thr | Ile | Glu | Ala | Ile | Thr | Arg | Pro |
| | | | 180 | | | | | 185 | | | | | 190 | | |
| Ile | Gln | Val | Ala | Gln | Gly | Gly | Arg | Lys | Thr | Ser | Thr | Ala | Thr | Arg | Lys |
| | 195 | | | | | | 200 | | | | | 205 | | | |
| Pro | Arg | Gly | Leu | Glu | Pro | Arg | Arg | Arg | Lys | Val | Lys | Thr | Thr | Val | Val |
| | 210 | | | | | 215 | | | | | 220 | | | | |
| Tyr | Gly | Arg | Arg | Arg | Ser | Lys | Ser | Arg | Glu | Arg | Arg | Ala | Ser | Ser | Pro |
| 225 | | | | | 230 | | | | | 235 | | | | | 240 |
| Gln | Arg | Ala | Gly | Ser | Pro | Leu | Pro | Arg | Ser | Ser | Ser | Ser | His | His | Arg |
| | | | | 245 | | | | | 250 | | | | | 255 | |
| Ser | Pro | Ser | Pro | Arg | Lys | | | | | | | | | | |
| | | | 260 | | | | | | | | | | | | |

<210> 138
 <211> 305
 <212> PRT
 <213> Duck hepatitis B virus

<400> 138

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Trp | Asp | Leu | Arg | Leu | His | Pro | Ser | Pro | Phe | Gly | Ala | Ala | Cys | Gln |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | |
| Gly | Ile | Phe | Thr | Ser | Ser | Leu | Leu | Leu | Phe | Leu | Val | Thr | Val | Pro | Leu |
| | | | 20 | | | | | 25 | | | | | 30 | | |
| Val | Cys | Thr | Ile | Val | Tyr | Asp | Ser | Cys | Leu | Cys | Met | Asp | Ile | Asn | Ala |
| | 35 | | | | | | 40 | | | | | 45 | | | |
| Ser | Arg | Ala | Leu | Ala | Asn | Val | Tyr | Asp | Leu | Pro | Asp | Asp | Phe | Phe | Pro |
| | 50 | | | | | 55 | | | | | 60 | | | | |
| Lys | Ile | Asp | Asp | Leu | Val | Arg | Asp | Ala | Lys | Asp | Ala | Leu | Glu | Pro | Tyr |
| 65 | | | | | 70 | | | | | 75 | | | | 80 | |
| Trp | Arg | Asn | Asp | Ser | Ile | Lys | Lys | His | Val | Leu | Ile | Ala | Thr | His | Phe |
| | | | | 85 | | | | | 90 | | | | | 95 | |
| Val | Asp | Leu | Ile | Glu | Asp | Phe | Trp | Gln | Thr | Thr | Gln | Gly | Met | His | Glu |
| | | 100 | | | | | | 105 | | | | | 110 | | |
| Ile | Ala | Glu | Ala | Leu | Arg | Ala | Ile | Ile | Pro | Ala | Thr | Thr | Ala | Pro | Val |

| | | |
|---|-----|-----|
| 115 | 120 | 125 |
| Pro Gln Gly Phe Leu Val Gln His Glu Glu Ala Glu Glu Ile Pro Leu | | |
| 130 | 135 | 140 |
| Gly Glu Leu Phe Arg Tyr Gln Glu Glu Arg Leu Thr Asn Phe Gln Pro | | |
| 145 | 150 | 155 |
| Asp Tyr Pro Val Thr Ala Arg Ile His Ala His Leu Lys Ala Tyr Ala | | |
| | 165 | 170 |
| | | 175 |
| Lys Ile Asn Glu Glu Ser Leu Asp Arg Ala Arg Arg Leu Leu Trp Trp | | |
| | 180 | 185 |
| | | 190 |
| His Tyr Asn Cys Leu Leu Trp Gly Glu Pro Asn Val Thr Asn Tyr Ile | | |
| | 195 | 200 |
| | | 205 |
| Ser Arg Leu Arg Thr Trp Leu Ser Thr Pro Glu Lys Tyr Arg Gly Lys | | |
| | 210 | 215 |
| | | 220 |
| Asp Ala Pro Thr Ile Glu Ala Ile Thr Arg Pro Ile Gln Val Ala Gln | | |
| 225 | 230 | 235 |
| | | 240 |
| Gly Gly Arg Asn Lys Thr Gln Gly Val Arg Lys Ser Arg Gly Leu Glu | | |
| | 245 | 250 |
| | | 255 |
| Pro Arg Arg Arg Arg Val Lys Thr Thr Ile Val Tyr Gly Arg Arg Arg | | |
| | 260 | 265 |
| | | 270 |
| Ser Lys Ser Arg Glu Arg Arg Ala Pro Thr Pro Gln Arg Ala Gly Ser | | |
| | 275 | 280 |
| | | 285 |
| Pro Leu Pro Arg Thr Ser Arg Asp His His Arg Ser Pro Ser Pro Arg | | |
| | 290 | 295 |
| | | 300 |
| Glu | | |
| 305 | | |
| <210> 139 | | |
| <211> 212 | | |
| <212> PRT | | |
| <213> Haemophilus influenzae | | |
| <400> 139 | | |
| Met Lys Lys Thr Leu Leu Gly Ser Leu Ile Leu Leu Ala Phe Ala Gly | | |
| 1 | 5 | 10 |
| | | 15 |
| Asn Val Gln Ala Ala Ala Asn Ala Asp Thr Ser Gly Thr Val Thr Phe | | |
| | 20 | 25 |
| | | 30 |
| Phe Gly Lys Val Val Glu Asn Thr Cys Gln Val Asn Gln Asp Ser Glu | | |
| | 35 | 40 |
| | | 45 |
| Tyr Glu Cys Asn Leu Asn Asp Val Gly Lys Asn His Leu Ser Gln Gln | | |
| | 50 | 55 |
| | | 60 |
| Gly Tyr Thr Ala Met Gln Thr Pro Phe Thr Ile Thr Leu Glu Asn Cys | | |
| 65 | 70 | 75 |
| | | 80 |
| Asn Val Thr Thr Thr Asn Asn Lys Pro Lys Ala Thr Lys Val Gly Val | | |

| 85 | | | | | | | | 90 | | | | 95 | | | |
|------------|------------|------------|------------|-----|------------|------------|------------|------------|-----|------------|------------|------------|------------|-----|------------|
| Tyr | Phe | Tyr | Ser 100 | Trp | Glu | Ile | Ala | Asp 105 | Lys | Asp | Asn | Lys | Tyr 110 | Thr | Leu |
| Lys | Asn | Ile 115 | Lys | Glu | Asn | Thr | Gly 120 | Thr | Asn | Asp | Ser | Ala 125 | Asn | Lys | Val |
| Asn | Ile 130 | Gln | Leu | Leu | Glu | Asp 135 | Asn | Gly | Thr | Ala | Glu 140 | Ile | Lys | Val | Val |
| Gly 145 | Lys | Thr | Thr | Thr | Asp 150 | Phe | Thr | Ser | Glu | Asn 155 | His | Asn | Gly | Ala | Gly 160 |
| Ala | Asp | Pro | Val 165 | Ala | Thr | Asn | Lys | His 170 | Ile | Ser | Ser | Leu | Thr 175 | Pro | Leu |
| Asn | Asn | Gln 180 | Asn | Ser | Ile | Asn | Leu | His 185 | Tyr | Ile | Ala | Gln 190 | Tyr | Tyr | Ala |
| Thr | Gly 195 | Val | Ala | Glu | Ala | Gly | Lys 200 | Val | Pro | Ser | Ser | Val 205 | Asn | Ser | Gln |
| Ile 210 | Ala | Tyr | Glu | | | | | | | | | | | | |

```
<210> 140
<211> 139
<212> PRT
<213> Pseudomonas stutzeri
```

```

<400> 140
Met Lys Ala Gln Met Gln Lys Gly Phe Thr Leu Ile Glu Leu Met Ile
  1                               5                               10                               15

Val Val Ala Ile Ile Gly Ile Leu Ala Ala Ile Ala Leu Pro Ala Tyr
      20                               25                               30

Gln Asp Tyr Thr Val Arg Ser Asn Ala Ala Ala Ala Leu Ala Glu Ile
      35                               40                               45

Thr Pro Gly Lys Ile Gly Phe Glu Gln Ala Ile Asn Glu Gly Lys Thr
      50                               55                               60

Pro Ser Leu Thr Ser Thr Asp Glu Gly Tyr Ile Gly Ile Thr Asp Ser
      65                               70                               75                               80

Thr Ser Tyr Cys Asp Val Asp Leu Asp Thr Ala Ala Asp Gly His Ile
      85                               90                               95

Glu Cys Thr Ala Lys Gly Gly Asn Ala Gly Lys Phe Asp Gly Lys Thr
      100                               105                               110

Ile Thr Leu Asn Arg Thr Ala Asp Gly Glu Trp Ser Cys Ala Ser Thr
      115                               120                               125

Leu Asp Ala Lys Tyr Lys Pro Gly Lys Cys Ser
      130                               135

```


<210> 141
<211> 59
<212> PRT
<213> *Caulobacter crescentus*

<400> 141
Met Thr Lys Phe Val Thr Arg Phe Leu Lys Asp Glu Ser Gly Ala Thr
1 5 10 15
Ala Ile Glu Tyr Gly Leu Ile Val Ala Leu Ile Ala Val Val Ile Val
20 25 30
Thr Ala Val Thr Thr Leu Gly Thr Asn Leu Arg Thr Ala Phe Thr Lys
35 40 45
Ala Gly Ala Ala Val Ser Thr Ala Ala Gly Thr
50 55

<210> 142
<211> 173
<212> PRT
<213> *Escherichia coli*

<400> 142
Met Ala Val Val Ser Phe Gly Val Asn Ala Ala Pro Thr Ile Pro Gln
1 5 10 15
Gly Gln Gly Lys Val Thr Phe Asn Gly Thr Val Val Asp Ala Pro Cys
20 25 30
Ser Ile Ser Gln Lys Ser Ala Asp Gln Ser Ile Asp Phe Gly Gln Leu
35 40 45
Ser Lys Ser Phe Leu Glu Ala Gly Gly Val Ser Lys Pro Met Asp Leu
50 55 60
Asp Ile Glu Leu Val Asn Cys Asp Ile Thr Ala Phe Lys Gly Gly Asn
65 70 75 80
Gly Ala Gln Lys Gly Thr Val Lys Leu Ala Phe Thr Gly Pro Ile Val
85 90 95
Asn Gly His Ser Asp Glu Leu Asp Thr Asn Gly Gly Thr Gly Thr Ala
100 105 110
Ile Val Val Gln Gly Ala Gly Lys Asn Val Val Phe Asp Gly Ser Glu
115 120 125
Gly Asp Ala Asn Thr Leu Lys Asp Gly Glu Asn Val Leu His Tyr Thr
130 135 140
Ala Val Val Lys Lys Ser Ser Ala Val Gly Ala Ala Val Thr Glu Gly
145 150 155 160
Ala Phe Ser Ala Val Ala Asn Phe Asn Leu Thr Tyr Gln
165 170

<210> 143
<211> 173

<212> PRT

<213> Escherichia coli

<400> 143

Met Ala Val Val Ser Phe Gly Val Asn Ala Ala Pro Thr Ile Pro Gln
1 5 10 15
Gly Gln Gly Lys Val Thr Phe Asn Gly Thr Val Val Asp Ala Pro Cys
20 25 30
Ser Ile Ser Gln Lys Ser Ala Asp Gln Ser Ile Asp Phe Gly Gln Leu
35 40 45
Ser Lys Ser Phe Leu Glu Ala Gly Gly Val Ser Lys Pro Met Asp Leu
50 55 60
Asp Ile Glu Leu Val Asn Cys Asp Ile Thr Ala Phe Lys Gly Gly Asn
65 70 75 80
Gly Ala Gln Lys Gly Thr Val Lys Leu Ala Phe Thr Gly Pro Ile Val
85 90 95
Asn Gly His Ser Asp Glu Leu Asp Thr Asn Gly Gly Thr Gly Thr Ala
100 105 110
Ile Val Val Gln Gly Ala Gly Lys Asn Val Val Phe Asp Gly Ser Glu
115 120 125
Gly Asp Ala Asn Thr Leu Lys Asp Gly Glu Asn Val Leu His Tyr Thr
130 135 140
Ala Val Val Lys Lys Ser Ser Ala Val Gly Ala Ala Val Thr Glu Gly
145 150 155 160
Ala Phe Ser Ala Val Ala Asn Phe Asn Leu Thr Tyr Gln
165 170

<210> 144

<211> 172

<212> PRT

<213> Escherichia coli

<400> 144

Met Ala Val Val Ser Phe Gly Val Asn Ala Ala Pro Thr Thr Pro Gln
1 5 10 15
Gly Gln Gly Arg Val Thr Phe Asn Gly Thr Val Val Asp Ala Pro Cys
20 25 30
Ser Ile Ser Gln Lys Ser Ala Asp Gln Ser Ile Asp Phe Gly Gln Leu
35 40 45
Ser Lys Ser Phe Leu Ala Asn Asp Gly Gln Ser Lys Pro Met Asn Leu
50 55 60
Asp Ile Glu Leu Val Asn Cys Asp Ile Thr Ala Phe Lys Asn Gly Asn
65 70 75 80
Ala Lys Thr Gly Ser Val Lys Leu Ala Phe Thr Gly Pro Thr Val Ser
85 90 95

| | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|
| Gly | His | Pro | Ser | Glu | Leu | Ala | Thr | Asn | Gly | Gly | Pro | Gly | Thr | Ala | Ile | |
| | | | 100 | | | | | 105 | | | | | 110 | | | |
| Met | Ile | Gln | Ala | Ala | Gly | Lys | Asn | Val | Pro | Phe | Asp | Gly | Thr | Glu | Gly | |
| | | 115 | | | | | 120 | | | | | 125 | | | | |
| Asp | Pro | Asn | Leu | Leu | Lys | Asp | Gly | Asp | Asn | Val | Leu | His | Tyr | Thr | Thr | |
| | 130 | | | | | 135 | | | | | 140 | | | | | |
| Val | Gly | Lys | Lys | Ser | Ser | Asp | Gly | Asn | Ala | Gln | Ile | Thr | Glu | Gly | Ala | |
| 145 | | | | | 150 | | | | | 155 | | | | | 160 | |
| Phe | Ser | Gly | Val | Ala | Thr | Phe | Asn | Leu | Ser | Tyr | Gln | | | | | |
| | | | 165 | | | | | 170 | | | | | | | | |

<210> 145
 <211> 853
 <212> DNA
 <213> Escherichia coli

<220>
 <221> CDS
 <222> (281)..(829)

<400> 145
 acgtttctgt ggctcgacgc atcttcctca ttcttctctc caaaaaccac ctcatgcaat 60
 ataaacatct ataaataaag ataacaaata gaatattaag ccaacaaata aactgaaaaa 120
 gtttgtccgc gatgctttac ctctatgagt caaaatggcc ccaatgtttc atcttttggg 180
 ggaaactgtg cagtgttggc agtcaaactc gttgacaaac aaagtgtaca gaacgactgc 240
 ccattgtgat ttagaaatag ttttttgaaa ggaaagcagc atg aaa att aaa act 295
 Met Lys Ile Lys Thr
 1 5
 ctg gca atc gtt gtt ctg tcg gct ctg tcc ctc agt tct acg acg gct 343
 Leu Ala Ile Val Val Leu Ser Ala Leu Ser Leu Ser Ser Thr Thr Ala
 10 15 20
 ctg gcc gct gcc acg acg gtt aat ggt ggg acc gtt cac ttt aaa ggg 391
 Leu Ala Ala Ala Thr Thr Val Asn Gly Gly Thr Val His Phe Lys Gly
 25 30 35
 gaa gtt gtt aac gcc gct tgc gca gtt gat gca ggc tct gtt gat caa 439
 Glu Val Val Asn Ala Ala Cys Ala Val Asp Ala Gly Ser Val Asp Gln
 40 45 50
 acc gtt cag tta gga cag gtt cgt acc gca tcg ctg gca cag gaa gga 487
 Thr Val Gln Leu Gly Gln Val Arg Thr Ala Ser Leu Ala Gln Glu Gly
 55 60 65
 gca acc agt tct gct gtc ggt ttt aac att cag ctg aat gat tgc gat 535
 Ala Thr Ser Ser Ala Val Gly Phe Asn Ile Gln Leu Asn Asp Cys Asp
 70 75 80 85
 acc aat gtt gca tct aaa gcc gct gtt gcc ttt tta ggt acg gcg att 583
 Thr Asn Val Ala Ser Lys Ala Ala Val Ala Phe Leu Gly Thr Ala Ile
 90 95 100

| | |
|---|-----|
| gat gcg ggt cat acc aac gtt ctg gct ctg cag agt tca gct gcg ggt | 631 |
| Asp Ala Gly His Thr Asn Val Leu Ala Leu Gln Ser Ser Ala Ala Gly | |
| 105 110 115 | |
| | |
| agc gca aca aac gtt ggt gtg cag atc ctg gac aga acg ggt gct gcg | 679 |
| Ser Ala Thr Asn Val Gly Val Gln Ile Leu Asp Arg Thr Gly Ala Ala | |
| 120 125 130 | |
| | |
| ctg acg ctg gat ggt gcg aca ttt agt tca gaa aca acc ctg aat aac | 727 |
| Leu Thr Leu Asp Gly Ala Thr Phe Ser Ser Glu Thr Thr Leu Asn Asn | |
| 135 140 145 | |
| | |
| gga acc aat acc att ccg ttc cag gcg cgt tat ttt gca acc ggg gcc | 775 |
| Gly Thr Asn Thr Ile Pro Phe Gln Ala Arg Tyr Phe Ala Thr Gly Ala | |
| 150 155 160 165 | |
| | |
| gca acc ccg ggt gct gct aat gcg gat gcg acc ttc aag gtt cag tat | 823 |
| Ala Thr Pro Gly Ala Ala Asn Ala Asp Ala Thr Phe Lys Val Gln Tyr | |
| 170 175 180 | |
| | |
| caa taa cctacctagg ttcagggacg ttca | 853 |
| Gln | |

<210> 146
 <211> 182
 <212> PRT
 <213> Escherichia coli

<400> 146

| | |
|---|--|
| Met Lys Ile Lys Thr Leu Ala Ile Val Val Leu Ser Ala Leu Ser Leu | |
| 1 5 10 15 | |
| Ser Ser Thr Thr Ala Leu Ala Ala Ala Thr Thr Val Asn Gly Gly Thr | |
| 20 25 30 | |
| Val His Phe Lys Gly Glu Val Val Asn Ala Ala Cys Ala Val Asp Ala | |
| 35 40 45 | |
| Gly Ser Val Asp Gln Thr Val Gln Leu Gly Gln Val Arg Thr Ala Ser | |
| 50 55 60 | |
| Leu Ala Gln Glu Gly Ala Thr Ser Ser Ala Val Gly Phe Asn Ile Gln | |
| 65 70 75 80 | |
| Leu Asn Asp Cys Asp Thr Asn Val Ala Ser Lys Ala Ala Val Ala Phe | |
| 85 90 95 | |
| Leu Gly Thr Ala Ile Asp Ala Gly His Thr Asn Val Leu Ala Leu Gln | |
| 100 105 110 | |
| Ser Ser Ala Ala Gly Ser Ala Thr Asn Val Gly Val Gln Ile Leu Asp | |
| 115 120 125 | |
| Arg Thr Gly Ala Ala Leu Thr Leu Asp Gly Ala Thr Phe Ser Ser Glu | |
| 130 135 140 | |
| Thr Thr Leu Asn Asn Gly Thr Asn Thr Ile Pro Phe Gln Ala Arg Tyr | |
| 145 150 155 160 | |
| Phe Ala Thr Gly Ala Ala Thr Pro Gly Ala Ala Asn Ala Asp Ala Thr | |
| 165 170 175 | |
| Phe Lys Val Gln Tyr Gln | |
| 180 | |

<210> 147
 <211> 11
 <212> PRT
 <213> Artificial Sequence

<220>

<223> FLAG peptide

<400> 147

Cys Gly Gly Asp Tyr Lys Asp Asp Asp Asp Lys
1 5 10

<210> 148

<211> 31

<212> DNA

<213> Artificial Sequence

<220>

<223> primer

<400> 148

ccggaattca tggacattga cccttataaa g

31

<210> 149

<211> 37

<212> DNA

<213> Artificial Sequence

<220>

<223> primer

<400> 149

gtgcagtatg gtgaggtgag gaatgctcag gagactc

37

<210> 150

<211> 37

<212> DNA

<213> Artificial Sequence

<220>

<223> primer

<400> 150

gsgtctcctg agcattcctc acctcaccat actgcac

37

<210> 151

<211> 33

<212> DNA

<213> Artificial Sequence

<220>

<223> primer

<400> 151

cttccaaaag tgaggggaaga aatgtgaaac cac

33

<210> 152

<211> 47
<212> DNA
<213> Artificial Sequence

<220>
<223> primer

<400> 152
cgcgtcccaa gcttctaaac aacagtagtc tccggaagcg ttgatag

47

<210> 153
<211> 33
<212> DNA
<213> Artificial Sequence

<220>
<223> primer

<400> 153
gtggtttcac atttcttccc tcacttttgg aag

33

<210> 154
<211> 281
<212> PRT
<213> *Saccharomyces cerevisiae*

<400> 154
Met Ser Glu Tyr Gln Pro Ser Leu Phe Ala Leu Asn Pro Met Gly Phe
1 5 10 15
Ser Pro Leu Asp Gly Ser Lys Ser Thr Asn Glu Asn Val Ser Ala Ser
20 25 30
Thr Ser Thr Ala Lys Pro Met Val Gly Gln Leu Ile Phe Asp Lys Phe
35 40 45
Ile Lys Thr Glu Glu Asp Pro Ile Ile Lys Gln Asp Thr Pro Ser Asn
50 55 60
Leu Asp Phe Asp Phe Ala Leu Pro Gln Thr Ala Thr Ala Pro Asp Ala
65 70 75 80
Lys Thr Val Leu Pro Ile Pro Glu Leu Asp Asp Ala Val Val Glu Ser
85 90 95
Phe Phe Ser Ser Ser Thr Asp Ser Thr Pro Met Phe Glu Tyr Glu Asn
100 105 110
Leu Glu Asp Asn Ser Lys Glu Trp Thr Ser Leu Phe Asp Asn Asp Ile
115 120 125
Pro Val Thr Thr Asp Asp Val Ser Leu Ala Asp Lys Ala Ile Glu Ser
130 135 140
Thr Glu Glu Val Ser Leu Val Pro Ser Asn Leu Glu Val Ser Thr Thr
145 150 155 160
Ser Phe Leu Pro Thr Pro Val Leu Glu Asp Ala Lys Leu Thr Gln Thr
165 170 175

Arg Lys Val Lys Lys Pro Asn Ser Val Val Lys Lys Ser His His Val
180 185 190

Gly Lys Asp Asp Glu Ser Arg Leu Asp His Leu Gly Val Val Ala Tyr
195 200 205

Asn Arg Lys Gln Arg Ser Ile Pro Leu Ser Pro Ile Val Pro Glu Ser
210 215 220

Ser Asp Pro Ala Ala Leu Lys Arg Ala Arg Asn Thr Glu Ala Ala Arg
225 230 235 240

Arg Ser Arg Ala Arg Lys Leu Gln Arg Met Lys Gln Leu Glu Asp Lys
245 250 255

Val Glu Glu Leu Leu Ser Lys Asn Tyr His Leu Glu Asn Glu Val Ala
260 265 270

Arg Leu Lys Lys Leu Val Gly Glu Arg
275 280

<210> 155
<211> 181
<212> PRT
<213> Escherichia coli

<400> 155
Met Lys Ile Lys Thr Leu Ala Ile Val Val Leu Ser Ala Leu Ser Leu
1 5 10 15

Ser Ser Thr Ala Ala Leu Ala Ala Ala Thr Thr Val Asn Gly Gly Thr
20 25 30

Val His Phe Lys Gly Glu Val Val Asn Ala Ala Cys Ala Val Asp Ala
35 40 45

Gly Ser Val Asp Gln Thr Val Gln Leu Gly Gln Val Arg Thr Ala Ser
50 55 60

Leu Ala Gln Glu Gly Ala Thr Ser Ser Ala Val Gly Phe Asn Ile Gln
65 70 75 80

Leu Asn Asp Cys Asp Thr Asn Val Ala Ser Lys Ala Ala Val Ala Phe
85 90 95

Leu Gly Thr Ala Ile Asp Ala Gly His Thr Asn Val Leu Ala Leu Gln
100 105 110

Ser Ser Ala Ala Gly Ser Ala Thr Asn Val Gly Val Gln Ile Leu Asp
115 120 125

Arg Thr Gly Ala Ala Leu Thr Leu Asp Gly Ala Thr Phe Ser Ser Glu
130 135 140

Thr Thr Leu Asn Asn Gly Thr Asn Thr Ile Pro Phe Gln Ala Arg Tyr
145 150 155 160

Phe Ala Gly Ala Ala Thr Pro Gly Ala Ala Asn Ala Asp Ala Thr Phe
165 170 175

Lys Val Gln Tyr Gln
180

<210> 156
<211> 447
<212> DNA
<213> Hepatitis B

<220>
<221> CDS
<222> (1)..(447)

<400> 156
atg gac att gac cct tat aaa gaa ttt gga gct act gtg gag tta ctc 48
Met Asp Ile Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu
1 5 10 15
tcg ttt ttg cct tct gac ttc ttt cct tcc gta cga gat ctt cta gat 96
Ser Phe Leu Pro Ser Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Asp
20 25 30
acc gcc gca gct ctg tat cgg gat gcc tta gag tct cct gag cat tgt 144
Thr Ala Ala Ala Leu Tyr Arg Asp Ala Leu Glu Ser Pro Glu His Cys
35 40 45
tca cct cac cat act gca ctc agg caa gca att ctt tgc tgg gga gac 192
Ser Pro His His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Asp
50 55 60
tta atg act cta gct acc tgg gtg ggt act aat tta gaa gat cca gca 240
Leu Met Thr Leu Ala Thr Trp Val Gly Thr Asn Leu Glu Asp Pro Ala
65 70 75 80
tct agg gac cta gta gtc agt tat gtc aac act aat gtg ggc cta aag 288
Ser Arg Asp Leu Val Val Ser Tyr Val Asn Thr Asn Val Gly Leu Lys
85 90 95
ttc aga caa tta ttg tgg ttt cac att tct tgt ctc act ttt gga aga 336
Phe Arg Gln Leu Leu Trp Phe His Ile Ser Cys Leu Thr Phe Gly Arg
100 105 110
gaa acg gtt cta gag tat ttg gtc tct ttt gga gtg tgg att cgc act 384
Glu Thr Val Leu Glu Tyr Leu Val Ser Phe Gly Val Trp Ile Arg Thr
115 120 125
cct cca gcc tat aga cca cca aat gcc cct atc cta tca acg ctt ccg 432
Pro Pro Ala Tyr Arg Pro Pro Asn Ala Pro Ile Leu Ser Thr Leu Pro
130 135 140
gag act act gtt gtt 447
Glu Thr Thr Val Val
145

<210> 157
<211> 149
<212> PRT
<213> Hepatitis B

<400> 157

Met Asp Ile Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu
1 5 10 15

Ser Phe Leu Pro Ser Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Asp
20 25 30

Thr Ala Ala Ala Leu Tyr Arg Asp Ala Leu Glu Ser Pro Glu His Cys
35 40 45

Ser Pro His His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Asp
50 55 60

Leu Met Thr Leu Ala Thr Trp Val Gly Thr Asn Leu Glu Asp Pro Ala
65 70 75 80

Ser Arg Asp Leu Val Val Ser Tyr Val Asn Thr Asn Val Gly Leu Lys
85 90 95

Phe Arg Gln Leu Leu Trp Phe His Ile Ser Cys Leu Thr Phe Gly Arg
100 105 110

Glu Thr Val Leu Glu Tyr Leu Val Ser Phe Gly Val Trp Ile Arg Thr
115 120 125

Pro Pro Ala Tyr Arg Pro Pro Asn Ala Pro Ile Leu Ser Thr Leu Pro
130 135 140

Glu Thr Thr Val Val
145

<210> 158
<211> 152
<212> PRT
<213> Hepatitis B

<400> 158
Met Asp Ile Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu
1 5 10 15

Ser Phe Leu Pro Ser Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Asp
20 25 30

Thr Ala Ala Ala Leu Tyr Arg Asp Ala Leu Glu Ser Pro Glu His Cys
35 40 45

Ser Pro His His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Asp
50 55 60

Leu Met Thr Leu Ala Thr Trp Val Gly Thr Asn Leu Glu Asp Gly Gly
65 70 75 80

Lys Gly Gly Ser Arg Asp Leu Val Val Ser Tyr Val Asn Thr Asn Val
85 90 95

Gly Leu Lys Phe Arg Gln Leu Leu Trp Phe His Ile Ser Cys Leu Thr
100 105 110

Phe Gly Arg Glu Thr Val Leu Glu Tyr Leu Val Ser Phe Gly Val Trp
115 120 125

Ile Arg Thr Pro Pro Ala Tyr Arg Pro Pro Asn Ala Pro Ile Leu Ser
130 135 140

Thr Leu Pro Glu Thr Thr Val Val
145 150

<210> 159

<211> 132

<212> PRT

<213> Bacteriophage Q Beta

<400> 159

Ala Lys Leu Glu Thr Val Thr Leu Gly Asn Ile Gly Lys Asp Gly Lys
1 5 10 15

Gln Thr Leu Val Leu Asn Pro Arg Gly Val Asn Pro Thr Asn Gly Val
20 25 30

Ala Ser Leu Ser Gln Ala Gly Ala Val Pro Ala Leu Glu Lys Arg Val
35 40 45

Thr Val Ser Val Ser Gln Pro Ser Arg Asn Arg Lys Asn Tyr Lys Val
50 55 60

Gln Val Lys Ile Gln Asn Pro Thr Ala Cys Thr Ala Asn Gly Ser Cys
65 70 75 80

Asp Pro Ser Val Thr Arg Gln Ala Tyr Ala Asp Val Thr Phe Ser Phe
85 90 95

Thr Gln Tyr Ser Thr Asp Glu Glu Arg Ala Phe Val Arg Thr Glu Leu
100 105 110

Ala Ala Leu Leu Ala Ser Pro Leu Leu Ile Asp Ala Ile Asp Gln Leu
115 120 125

Asn Pro Ala Tyr
130

<210> 160

<211> 129

<212> PRT

<213> Bacteriophage R 17

<400> 160

Ala Ser Asn Phe Thr Gln Phe Val Leu Val Asn Asp Gly Gly Thr Gly
1 5 10 15

Asn Val Thr Val Ala Pro Ser Asn Phe Ala Asn Gly Val Ala Glu Trp
20 25 30

Ile Ser Ser Asn Ser Arg Ser Gln Ala Tyr Lys Val Thr Cys Ser Val
35 40 45

Arg Gln Ser Ser Ala Gln Asn Arg Lys Tyr Thr Ile Lys Val Glu Val
50 55 60

Pro Lys Val Ala Thr Gln Thr Val Gly Gly Val Glu Leu Pro Val Ala

| | | | | | | |
|---|-----|----|--|-----|--|-----|
| 65 | | 70 | | 75 | | 80 |
| Ala Trp Arg Ser Tyr Leu Asn Met Glu Leu Thr Ile Pro Ile Phe Ala | | | | | | |
| | 85 | | | 90 | | 95 |
| Thr Asn Ser Asp Cys Glu Leu Ile Val Lys Ala Met Gln Gly Leu Leu | | | | | | |
| | 100 | | | 105 | | 110 |
| Lys Asp Gly Asn Pro Ile Pro Ser Ala Ile Ala Ala Asn Ser Gly Ile | | | | | | |
| | 115 | | | 120 | | 125 |

Tyr

<210> 161
 <211> 130
 <212> PRT
 <213> Bacteriophage fr

<400> 161

| | | | | | | |
|---|-----|----|----|-----|----|-----|
| Met Ala Ser Asn Phe Glu Glu Phe Val Leu Val Asp Asn Gly Gly Thr | | | | | | |
| 1 | | 5 | | | 10 | 15 |
| Gly Asp Val Lys Val Ala Pro Ser Asn Phe Ala Asn Gly Val Ala Glu | | | | | | |
| | 20 | | | 25 | | 30 |
| Trp Ile Ser Ser Asn Ser Arg Ser Gln Ala Tyr Lys Val Thr Cys Ser | | | | | | |
| | 35 | | | 40 | | 45 |
| Val Arg Gln Ser Ser Ala Asn Asn Arg Lys Tyr Thr Val Lys Val Glu | | | | | | |
| | 50 | | 55 | | 60 | |
| Val Pro Lys Val Ala Thr Gln Val Gln Gly Gly Val Glu Leu Pro Val | | | | | | |
| 65 | | 70 | | 75 | | 80 |
| Ala Ala Trp Arg Ser Tyr Met Asn Met Glu Leu Thr Ile Pro Val Phe | | | | | | |
| | 85 | | | 90 | | 95 |
| Ala Thr Asn Asp Asp Cys Ala Leu Ile Val Lys Ala Leu Gln Gly Thr | | | | | | |
| | 100 | | | 105 | | 110 |
| Phe Lys Thr Gly Asn Pro Ile Ala Thr Ala Ile Ala Ala Asn Ser Gly | | | | | | |
| | 115 | | | 120 | | 125 |

Ile Tyr
 130

<210> 162
 <211> 130
 <212> PRT
 <213> Bacteriophage GA

<400> 162

| | | | | | | |
|---|--|---|--|--|----|----|
| Met Ala Thr Leu Arg Ser Phe Val Leu Val Asp Asn Gly Gly Thr Gly | | | | | | |
| 1 | | 5 | | | 10 | 15 |

Asn Val Thr Val Val Pro Val Ser Asn Ala Asn Gly Val Ala Glu Trp
20 25 30

Leu Ser Asn Asn Ser Arg Ser Gln Ala Tyr Arg Val Thr Ala Ser Tyr
35 40 45

Arg Ala Ser Gly Ala Asp Lys Arg Lys Tyr Ala Ile Lys Leu Glu Val
50 55 60

Pro Lys Ile Val Thr Gln Val Val Asn Gly Val Glu Leu Pro Gly Ser
65 70 75 80

Ala Trp Lys Ala Tyr Ala Ser Ile Asp Leu Thr Ile Pro Ile Phe Ala
85 90 95

Ala Thr Asp Asp Val Thr Val Ile Ser Lys Ser Leu Ala Gly Leu Phe
100 105 110

Lys Val Gly Asn Pro Ile Ala Glu Ala Ile Ser Ser Gln Ser Gly Phe
115 120 125

Tyr Ala
130

<210> 163
<211> 132
<212> PRT
<213> Bacteriophage SP

<400> 163

Met Ala Lys Leu Asn Gln Val Thr Leu Ser Lys Ile Gly Lys Asn Gly
1 5 10 15

Asp Gln Thr Leu Thr Leu Thr Pro Arg Gly Val Asn Pro Thr Asn Gly
20 25 30

Val Ala Ser Leu Ser Glu Ala Gly Ala Val Pro Ala Leu Glu Lys Arg
35 40 45

Val Thr Val Ser Val Ala Gln Pro Ser Arg Asn Arg Lys Asn Phe Lys
50 55 60

Val Gln Ile Lys Leu Gln Asn Pro Thr Ala Cys Thr Arg Asp Ala Cys
65 70 75 80

Asp Pro Ser Val Thr Arg Ser Ala Phe Ala Asp Val Thr Leu Ser Phe
85 90 95

Thr Ser Tyr Ser Thr Asp Glu Glu Arg Ala Leu Ile Arg Thr Glu Leu
100 105 110

Ala Ala Leu Leu Ala Asp Pro Leu Ile Val Asp Ala Ile Asp Asn Leu
115 120 125

Asn Pro Ala Tyr
130

<210> 164
<211> 130
<212> PRT
<213> Bacteriophage MS2

<400> 164

Met Ala Ser Asn Phe Thr Gln Phe Val Leu Val Asp Asn Gly Gly Thr
1 5 10 15
Gly Asp Val Thr Val Ala Pro Ser Asn Phe Ala Asn Gly Val Ala Glu
20 25 30
Trp Ile Ser Ser Asn Ser Arg Ser Gln Ala Tyr Lys Val Thr Cys Ser
35 40 45
Val Arg Gln Ser Ser Ala Gln Asn Arg Lys Tyr Thr Ile Lys Val Glu
50 55 60
Val Pro Lys Val Ala Thr Gln Thr Val Gly Gly Val Glu Leu Pro Val
65 70 75 80
Ala Ala Trp Arg Ser Tyr Leu Asn Met Glu Leu Thr Ile Pro Ile Phe
85 90 95
Ala Thr Asn Ser Asp Cys Glu Leu Ile Val Lys Ala Met Gln Gly Leu
100 105 110
Leu Lys Asp Gly Asn Pro Ile Pro Ser Ala Ile Ala Ala Asn Ser Gly
115 120 125
Ile Tyr
130

<210> 165
<211> 133
<212> PRT
<213> Bacteriophage M11

<400> 165

Met Ala Lys Leu Gln Ala Ile Thr Leu Ser Gly Ile Gly Lys Lys Gly
1 5 10 15
Asp Val Thr Leu Asp Leu Asn Pro Arg Gly Val Asn Pro Thr Asn Gly
20 25 30
Val Ala Ala Leu Ser Glu Ala Gly Ala Val Pro Ala Leu Glu Lys Arg
35 40 45
Val Thr Ile Ser Val Ser Gln Pro Ser Arg Asn Arg Lys Asn Tyr Lys
50 55 60
Val Gln Val Lys Ile Gln Asn Pro Thr Ser Cys Thr Ala Ser Gly Thr
65 70 75 80
Cys Asp Pro Ser Val Thr Arg Ser Ala Tyr Ser Asp Val Thr Phe Ser
85 90 95
Phe Thr Gln Tyr Ser Thr Val Glu Glu Arg Ala Leu Val Arg Thr Glu
100 105 110

Leu Gln Ala Leu Leu Ala Asp Pro Met Leu Val Asn Ala Ile Asp Asn
115 120 125

Leu Asn Pro Ala Tyr
130

<210> 166
<211> 133
<212> PRT
<213> Bacteriophage MX1

<400> 166
Met Ala Lys Leu Gln Ala Ile Thr Leu Ser Gly Ile Gly Lys Asn Gly
1 5 10 15

Asp Val Thr Leu Asn Leu Asn Pro Arg Gly Val Asn Pro Thr Asn Gly
20 25 30

Val Ala Ala Leu Ser Glu Ala Gly Ala Val Pro Ala Leu Glu Lys Arg
35 40 45

Val Thr Ile Ser Val Ser Gln Pro Ser Arg Asn Arg Lys Asn Tyr Lys
50 55 60

Val Gln Val Lys Ile Gln Asn Pro Thr Ser Cys Thr Ala Ser Gly Thr
65 70 75 80

Cys Asp Pro Ser Val Thr Arg Ser Ala Tyr Ala Asp Val Thr Phe Ser
85 90 95

Phe Thr Gln Tyr Ser Thr Asp Glu Glu Arg Ala Leu Val Arg Thr Glu
100 105 110

Leu Lys Ala Leu Leu Ala Asp Pro Met Leu Ile Asp Ala Ile Asp Asn
115 120 125

Leu Asn Pro Ala Tyr
130

<210> 167
<211> 330
<212> PRT
<213> Bacteriophage NL95

<400> 167
Met Ala Lys Leu Asn Lys Val Thr Leu Thr Gly Ile Gly Lys Ala Gly
1 5 10 15

Asn Gln Thr Leu Thr Leu Thr Pro Arg Gly Val Asn Pro Thr Asn Gly
20 25 30

Val Ala Ser Leu Ser Glu Ala Gly Ala Val Pro Ala Leu Glu Lys Arg
35 40 45

Val Thr Val Ser Val Ala Gln Pro Ser Arg Asn Arg Lys Asn Tyr Lys
50 55 60

| | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|
| Val | Gln | Ile | Lys | Leu | Gln | Asn | Pro | Thr | Ala | Cys | Thr | Lys | Asp | Ala | Cys | |
| 65 | | | | | 70 | | | | | 75 | | | | | 80 | |
| Asp | Pro | Ser | Val | Thr | Arg | Ser | Gly | Ser | Arg | Asp | Val | Thr | Leu | Ser | Phe | |
| | | | | 85 | | | | | 90 | | | | | 95 | | |
| Thr | Ser | Tyr | Ser | Thr | Glu | Arg | Glu | Arg | Ala | Leu | Ile | Arg | Thr | Glu | Leu | |
| | | | 100 | | | | | 105 | | | | | 110 | | | |
| Ala | Ala | Leu | Leu | Lys | Asp | Asp | Leu | Ile | Val | Asp | Ala | Ile | Asp | Asn | Leu | |
| | | 115 | | | | | 120 | | | | | 125 | | | | |
| Asn | Pro | Ala | Tyr | Trp | Ala | Ala | Leu | Leu | Ala | Ala | Ser | Pro | Gly | Gly | Gly | |
| | 130 | | | | | 135 | | | | | 140 | | | | | |
| Asn | Asn | Pro | Tyr | Pro | Gly | Val | Pro | Asp | Ser | Pro | Asn | Val | Lys | Pro | Pro | |
| | 145 | | | | 150 | | | | | 155 | | | | | 160 | |
| Gly | Gly | Thr | Gly | Thr | Tyr | Arg | Cys | Pro | Phe | Ala | Cys | Tyr | Arg | Arg | Gly | |
| | | | 165 | | | | | 170 | | | | | | 175 | | |
| Glu | Leu | Ile | Thr | Glu | Ala | Lys | Asp | Gly | Ala | Cys | Ala | Leu | Tyr | Ala | Cys | |
| | | | 180 | | | | | 185 | | | | | 190 | | | |
| Gly | Ser | Glu | Ala | Leu | Val | Glu | Phe | Glu | Tyr | Ala | Leu | Glu | Asp | Phe | Leu | |
| | | 195 | | | | | 200 | | | | | 205 | | | | |
| Gly | Asn | Glu | Phe | Trp | Arg | Asn | Trp | Asp | Gly | Arg | Leu | Ser | Lys | Tyr | Asp | |
| | 210 | | | | | 215 | | | | | 220 | | | | | |
| Ile | Glu | Thr | His | Arg | Arg | Cys | Arg | Gly | Asn | Gly | Tyr | Val | Asp | Leu | Asp | |
| | 225 | | | | 230 | | | | | 235 | | | | 240 | | |
| Ala | Ser | Val | Met | Gln | Ser | Asp | Glu | Tyr | Val | Leu | Ser | Gly | Ala | Tyr | Asp | |
| | | | 245 | | | | | | 250 | | | | | 255 | | |
| Val | Val | Lys | Met | Gln | Pro | Pro | Gly | Thr | Phe | Asp | Ser | Pro | Arg | Tyr | Tyr | |
| | | | 260 | | | | | 265 | | | | | 270 | | | |
| Leu | His | Leu | Met | Asp | Gly | Ile | Tyr | Val | Asp | Leu | Ala | Glu | Val | Thr | Ala | |
| | | 275 | | | | | 280 | | | | | 285 | | | | |
| Tyr | Arg | Ser | Tyr | Gly | Met | Val | Ile | Gly | Phe | Trp | Thr | Asp | Ser | Lys | Ser | |
| | 290 | | | | | 295 | | | | | 300 | | | | | |
| Pro | Gln | Leu | Pro | Thr | Asp | Phe | Thr | Arg | Phe | Asn | Arg | His | Asn | Cys | Pro | |
| | 305 | | | | 310 | | | | | 315 | | | | | 320 | |
| Val | Gln | Thr | Val | Ile | Val | Ile | Pro | Ser | Leu | | | | | | | |
| | | | 325 | | | | | | 330 | | | | | | | |

<210> 168

<211> 134

<212> PRT

<213> Apis mellifera

<400> 168

| | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|
| Ile | Ile | Tyr | Pro | Gly | Thr | Leu | Trp | Cys | Gly | His | Gly | Asn | Lys | Ser | Ser | |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | | |

Gly Pro Asn Glu Leu Gly Arg Phe Lys His Thr Asp Ala Cys Cys Arg
 20 25 30
 Thr His Asp Met Cys Pro Asp Val Met Ser Ala Gly Glu Ser Lys His
 35 40 45
 Gly Leu Thr Asn Thr Ala Ser His Thr Arg Leu Ser Cys Asp Cys Asp
 50 55 60
 Asp Lys Phe Tyr Asp Cys Leu Lys Asn Ser Ala Asp Thr Ile Ser Ser
 65 70 75 80
 Tyr Phe Val Gly Lys Met Tyr Phe Asn Leu Ile Asp Thr Lys Cys Tyr
 85 90 95
 Lys Leu Glu His Pro Val Thr Gly Cys Gly Glu Arg Thr Glu Gly Arg
 100 105 110
 Cys Leu His Tyr Thr Val Asp Lys Ser Lys Pro Lys Val Tyr Gln Trp
 115 120 125
 Phe Asp Leu Arg Lys Tyr
 130

<210> 169
 <211> 129
 <212> PRT
 <213> Apis mellifera

<400> 169
 Ile Ile Tyr Pro Gly Thr Leu Trp Cys Gly His Gly Asn Lys Ser Ser
 1 5 10 15
 Gly Pro Asn Glu Leu Gly Arg Phe Lys His Thr Asp Ala Cys Cys Arg
 20 25 30
 Thr His Asp Met Cys Pro Asn Val Met Ser Ala Gly Glu Ser Lys His
 35 40 45
 Gly Leu Thr Asp Thr Ala Ser Arg Leu Ser Cys Asn Asp Asn Asp Leu
 50 55 60
 Phe Tyr Lys Asp Ser Ala Asp Thr Ile Ser Ser Tyr Phe Val Gly Lys
 65 70 75 80
 Met Tyr Phe Asn Leu Ile Asn Thr Lys Cys Tyr Lys Leu Glu His Pro
 85 90 95
 Val Thr Gly Cys Gly Glu Arg Thr Glu Gly Arg Cys Leu His Tyr Thr
 100 105 110
 Val Asp Lys Ser Lys Pro Lys Val Tyr Gln Trp Phe Asp Leu Arg Lys
 115 120 125

Tyr

<210> 170
 <211> 134
 <212> PRT

<213> Apis dorsata

<400> 170

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Ile | Ile | Tyr | Pro | Gly | Thr | Leu | Trp | Cys | Gly | His | Gly | Asn | Val | Ser | Ser |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | |
| Ser | Pro | Asp | Glu | Leu | Gly | Arg | Phe | Lys | His | Thr | Asp | Ser | Cys | Cys | Arg |
| | | | 20 | | | | | 25 | | | | | 30 | | |
| Ser | His | Asp | Met | Cys | Pro | Asp | Val | Met | Ser | Ala | Gly | Glu | Ser | Lys | His |
| | | | 35 | | | | 40 | | | | | 45 | | | |
| Gly | Leu | Thr | Asn | Thr | Ala | Ser | His | Thr | Arg | Leu | Ser | Cys | Asp | Cys | Asp |
| | 50 | | | | | 55 | | | | 60 | | | | | |
| Asp | Lys | Phe | Tyr | Asp | Cys | Leu | Lys | Asn | Ser | Ser | Asp | Thr | Ile | Ser | Ser |
| 65 | | | | | 70 | | | | 75 | | | | | 80 | |
| Tyr | Phe | Val | Gly | Glu | Met | Tyr | Phe | Asn | Ile | Leu | Asp | Thr | Lys | Cys | Tyr |
| | | | | 85 | | | | | 90 | | | | | 95 | |
| Lys | Leu | Glu | His | Pro | Val | Thr | Gly | Cys | Gly | Lys | Arg | Thr | Glu | Gly | Arg |
| | | | 100 | | | | | 105 | | | | | 110 | | |
| Cys | Leu | Asn | Tyr | Thr | Val | Asp | Lys | Ser | Lys | Pro | Lys | Val | Tyr | Gln | Trp |
| | | 115 | | | | | 120 | | | | | 125 | | | |
| Phe | Asp | Leu | Arg | Lys | Tyr | | | | | | | | | | |
| | | | | | | | | | | | | | | | |

<210> 171

<211> 134

<212> PRT

<213> Apis cerana

<400> 171

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Ile | Ile | Tyr | Pro | Gly | Thr | Leu | Trp | Cys | Gly | His | Gly | Asn | Val | Ser | Ser |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | |
| Gly | Pro | Asn | Glu | Leu | Gly | Arg | Phe | Lys | His | Thr | Asp | Ala | Cys | Cys | Arg |
| | | | 20 | | | | | 25 | | | | | 30 | | |
| Thr | His | Asp | Met | Cys | Pro | Asp | Val | Met | Ser | Ala | Gly | Glu | Ser | Lys | His |
| | | | 35 | | | | 40 | | | | | 45 | | | |
| Gly | Leu | Thr | Asn | Thr | Ala | Ser | His | Thr | Arg | Leu | Ser | Cys | Asp | Cys | Asp |
| | 50 | | | | | 55 | | | | 60 | | | | | |
| Asp | Thr | Phe | Tyr | Asp | Cys | Leu | Lys | Asn | Ser | Gly | Glu | Lys | Ile | Ser | Ser |
| 65 | | | | | 70 | | | | 75 | | | | | 80 | |
| Tyr | Phe | Val | Gly | Lys | Met | Tyr | Phe | Asn | Leu | Ile | Asp | Thr | Lys | Cys | Tyr |
| | | | | 85 | | | | | 90 | | | | | 95 | |
| Lys | Leu | Glu | His | Pro | Val | Thr | Gly | Cys | Gly | Glu | Arg | Thr | Glu | Gly | Arg |
| | | | 100 | | | | | 105 | | | | | 110 | | |
| Cys | Leu | Arg | Tyr | Thr | Val | Asp | Lys | Ser | Lys | Pro | Lys | Val | Tyr | Gln | Trp |
| | | 115 | | | | | 120 | | | | | 125 | | | |

Phe Asp Leu Arg Lys Tyr
130

<210> 172
<211> 136
<212> PRT
<213> Bombus pennsylvanicus

<400> 172
Ile Ile Tyr Pro Gly Thr Leu Trp Cys Gly Asn Gly Asn Ile Ala Asn
1 5 10 15
Gly Thr Asn Glu Leu Gly Leu Trp Lys Glu Thr Asp Ala Cys Cys Arg
20 25 30
Thr His Asp Met Cys Pro Asp Ile Ile Glu Ala His Gly Ser Lys His
35 40 45
Gly Leu Thr Asn Pro Ala Asp Tyr Thr Arg Leu Asn Cys Glu Cys Asp
50 55 60
Glu Glu Phe Arg His Cys Leu His Asn Ser Gly Asp Ala Val Ser Ala
65 70 75 80
Ala Phe Val Gly Arg Thr Tyr Phe Thr Ile Leu Gly Thr Gln Cys Phe
85 90 95
Arg Leu Asp Tyr Pro Ile Val Lys Cys Lys Val Lys Ser Thr Ile Leu
100 105 110
Arg Glu Cys Lys Glu Tyr Glu Phe Asp Thr Asn Ala Pro Gln Lys Tyr
115 120 125
Gln Trp Phe Asp Val Leu Ser Tyr
130 135

<210> 173
<211> 142
<212> PRT
<213> Heloderma suspectum

<400> 173
Gly Ala Phe Ile Met Pro Gly Thr Leu Trp Cys Gly Ala Gly Asn Ala
1 5 10 15
Ala Ser Asp Tyr Ser Gln Leu Gly Thr Glu Lys Asp Thr Asp Met Cys
20 25 30
Cys Arg Asp His Asp His Cys Ser Asp Thr Met Ala Ala Leu Glu Tyr
35 40 45
Lys His Gly Met Arg Asn Tyr Arg Pro His Thr Val Ser His Cys Asp
50 55 60
Cys Asp Asn Gln Phe Arg Ser Cys Leu Met Asn Val Lys Asp Arg Thr
65 70 75 80
Ala Asp Leu Val Gly Met Thr Tyr Phe Thr Val Leu Lys Ile Ser Cys

| | | | | | |
|---|-----|-----|-----|--|----|
| | 85 | | 90 | | 95 |
| Phe Glu Leu Glu Glu Gly Glu Gly Cys Val Asp Asn Asn Phe Ser Gln | 100 | 105 | 110 | | |
| Gln Cys Thr Lys Ser Glu Ile Met Pro Val Ala Lys Leu Val Ser Ala | 115 | 120 | 125 | | |
| Ala Pro Tyr Gln Ala Gln Ala Glu Thr Gln Ser Gly Glu Gly | 130 | 135 | 140 | | |

<210> 174
 <211> 143
 <212> PRT
 <213> Heloderma suspectum

| |
|---|
| <400> 174 |
| Gly Ala Phe Ile Met Pro Gly Thr Leu Trp Cys Gly Ala Gly Asn Ala |
| 1 5 10 15 |
| Ala Ser Asp Tyr Ser Gln Leu Gly Thr Glu Lys Asp Thr Asp Met Cys |
| 20 25 30 |
| Cys Arg Asp His Asp His Cys Glu Asn Trp Ile Ser Ala Leu Glu Tyr |
| 35 40 45 |
| Lys His Gly Met Arg Asn Tyr Tyr Pro Ser Thr Ile Ser His Cys Asp |
| 50 55 60 |
| Cys Asp Asn Gln Phe Arg Ser Cys Leu Met Lys Leu Lys Asp Gly Thr |
| 65 70 75 80 |
| Ala Asp Tyr Val Gly Gln Thr Tyr Phe Asn Val Leu Lys Ile Pro Cys |
| 85 90 95 |
| Phe Glu Leu Glu Glu Gly Glu Gly Cys Val Asp Trp Asn Phe Trp Leu |
| 100 105 110 |
| Glu Cys Thr Glu Ser Lys Ile Met Pro Val Ala Lys Leu Val Ser Ala |
| 115 120 125 |
| Ala Pro Tyr Gln Ala Gln Ala Glu Thr Gln Ser Gly Glu Gly Arg |
| 130 135 140 |

<210> 175
 <211> 142
 <212> PRT
 <213> Heloderma suspectum

| |
|---|
| <400> 175 |
| Gly Ala Phe Ile Met Pro Gly Thr Leu Trp Cys Gly Ala Gly Asn Ala |
| 1 5 10 15 |
| Ala Ser Asp Tyr Ser Gln Leu Gly Thr Glu Lys Asp Thr Asp Met Cys |
| 20 25 30 |
| Cys Arg Asp His Asp His Cys Glu Asn Trp Ile Ser Ala Leu Glu Tyr |
| 35 40 45 |

Lys His Gly Met Arg Asn Tyr Tyr Pro Ser Thr Ile Ser His Cys Asp
 50 55 60
 Cys Asp Asn Gln Phe Arg Ser Cys Leu Met Lys Leu Lys Asp Gly Thr
 65 70 75 80
 Ala Asp Tyr Val Gly Gln Thr Tyr Phe Asn Val Leu Lys Ile Pro Cys
 85 90 95
 Phe Glu Leu Glu Gly Glu Gly Cys Val Asp Trp Asn Phe Trp Leu
 100 105 110
 Glu Cys Thr Glu Ser Lys Ile Met Pro Val Ala Lys Leu Val Ser Ala
 115 120 125

Ala Pro Tyr Gln Ala Gln Ala Glu Thr Gln Ser Gly Glu Gly
 130 135 140

<210> 176
 <211> 574
 <212> PRT
 <213> IgE heavy chain

<400> 176

Met Asp Trp Thr Trp Ile Leu Phe Leu Val Ala Ala Ala Thr Arg Val
 1 5 10 15
 His Ser Gln Thr Gln Leu Val Gln Ser Gly Ala Glu Val Arg Lys Pro
 20 25 30
 Gly Ala Ser Val Arg Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe Ile
 35 40 45
 Asp Ser Tyr Ile His Trp Ile Arg Gln Ala Pro Gly His Gly Leu Glu
 50 55 60
 Trp Val Gly Trp Ile Asn Pro Asn Ser Gly Gly Thr Asn Tyr Ala Pro
 65 70 75 80
 Arg Phe Gln Gly Arg Val Thr Met Thr Arg Asp Ala Ser Phe Ser Thr
 85 90 95
 Ala Tyr Met Asp Leu Arg Ser Leu Arg Ser Asp Asp Ser Ala Val Phe
 100 105 110
 Tyr Cys Ala Lys Ser Asp Pro Phe Trp Ser Asp Tyr Tyr Asn Phe Asp
 115 120 125
 Tyr Ser Tyr Thr Leu Asp Val Trp Gly Gln Gly Thr Thr Val Thr Val
 130 135 140
 Ser Ser Ala Ser Thr Gln Ser Pro Ser Val Phe Pro Leu Thr Arg Cys
 145 150 155 160
 Cys Lys Asn Ile Pro Ser Asn Ala Thr Ser Val Thr Leu Gly Cys Leu

| | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|
| | | | | 165 | | | | 170 | | | | 175 | | | | |
| Ala | Thr | Gly | Tyr | Phe | Pro | Glu | Pro | Val | Met | Val | Thr | Trp | Asp | Thr | Gly | |
| | | | | 180 | | | | | 185 | | | | | 190 | | |
| Ser | Leu | Asn | Gly | Thr | Thr | Met | Thr | Leu | Pro | Ala | Thr | Thr | Leu | Thr | Leu | |
| | | | | 195 | | | | | 200 | | | | | 205 | | |
| Ser | Gly | His | Tyr | Ala | Thr | Ile | Ser | Leu | Leu | Thr | Val | Ser | Gly | Ala | Trp | |
| | | | | 210 | | | | | 215 | | | | | 220 | | |
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| Asp | Trp | Val | Asp | Asn | Lys | Thr | Phe | Ser | Val | Cys | Ser | Arg | Asp | Phe | Thr | |
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| Pro | Pro | Thr | Val | Lys | Ile | Leu | Gln | Ser | Ser | Cys | Asp | Gly | Gly | Gly | His | |
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| Gln | Ser | Glu | Leu | Thr | Leu | Ser | Gln | Lys | His | Trp | Leu | Ser | Asp | Arg | Thr | |
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| Tyr | Thr | Cys | Gln | Val | Thr | Tyr | Gln | Gly | His | Thr | Phe | Glu | Asp | Ser | Thr | |
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| Trp | Ser | Arg | Ala | Ser | Gly | Lys | Pro | Val | Asn | His | Ser | Thr | Arg | Lys | Glu | |
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| Glu | Lys | Gln | Arg | Asn | Gly | Thr | Leu | Thr | Val | Thr | Ser | Thr | Leu | Pro | Val | |
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| Gly | Thr | Arg | Asp | Trp | Ile | Glu | Gly | Glu | Thr | Tyr | Gln | Cys | Arg | Val | Thr | |
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| His | Pro | His | Leu | Pro | Arg | Ala | Leu | Met | Arg | Ser | Thr | Thr | Lys | Thr | Ser | |
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Pro Asp Ala Arg His Ser Thr Thr Gln Pro Arg Lys Thr Lys Gly Ser
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Gly Phe Phe Val Phe Ser Arg Leu Glu Val Thr Arg Ala Glu Trp Glu
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| aacactgtat | ttgagtggta | gccatcaaac | ttattgggga | acgagtaatg | tcgatgagca | 5940 |
| attccaggct | ggattaaata | ctgcgttcga | agatatcaac | tggacgctca | gctatagcct | 6000 |
| gacgaaaaac | gcctggcaaa | aaggacggga | tcagatgtta | gcgcttaacg | tcaatattcc | 6060 |
| tttcagccac | tggtgcgtt | ctgacagtaa | atctcagtgg | cgacatgcca | gtgccagcta | 6120 |
| cagcatgtca | cacgatctca | acggtcggat | gaccaatctg | gctggtgtat | acggtacggt | 6180 |
| gctggaagac | aacaacctca | gctatagcgt | gcaaaccggc | tatgccgggg | gaggcgatgg | 6240 |
| aaatagcggg | agtacaggct | acgccacgct | gaattatcgc | ggtgggttacg | gcaatgccaa | 6300 |
| tatcggttac | agccatagcg | atgatattaa | gcagctctat | tacggagtca | gcggtggggg | 6360 |
| actggctcat | gccaatggcg | taacgctggg | gcagccgtta | aacgatacgg | tggtgcttgt | 6420 |
| taaagcgctt | ggcgcaaaag | atgcaaaagt | cgaaaaccag | acgggggtgc | gtaccgactg | 6480 |
| gcgtgggttat | gccgtgctgc | cttatgccac | tgaatatcgg | gaaaatagag | tggcgctgga | 6540 |
| taccaatacc | ctggctgata | acgtcgattt | agataacgcg | gttgctaacg | ttgttcccac | 6600 |
| tcgtggggcg | atcggtcgag | cagagtttaa | agcgcgcggt | gggataaaac | tgctcatgac | 6660 |
| gctgaccac | aataataagc | cgctgccggt | tggggcgatg | gtgacatcag | agagtagcca | 6720 |
| gagtagcggc | attgttgctg | ataatgggtca | ggtttacctc | agcggaatgc | ctttagcggg | 6780 |
| aaaagttcag | gtgaaatggg | gagaagagga | aaatgctcac | tgtgtcgcca | attatcaact | 6840 |
| gccaccagag | agtcagcagc | agttattaac | ccagctatca | gctgaatgtc | gttaaggggg | 6900 |
| cgatgatgaga | aacaaacctt | tttatcttct | gtgcgctttt | ttgtggctgg | cggtgagtca | 6960 |
| cgctttggct | gcggatagca | cgattactat | ccgcggctat | gtcagggata | acggctgtag | 7020 |
| tgtggccgct | gaatcaacca | attttactgt | tgatctgatg | gaaaacgcgg | cgaagcaatt | 7080 |

| | |
|---|------|
| taacaacatt ggcgcgacga ctctgttgt tccatttcgt attttgctgt caccctgtgg | 7140 |
| taatgccgtt tctgccgtaa aggttgggtt tactggcggt gcagatagcc acaatgccaa | 7200 |
| cctgcttgca cttgaaaata cgggtgtcagc ggcttcggga ctgggaatac agcttctgaa | 7260 |
| tgagcagcaa aatcaaatac cccttaatgc tccatcgctc gcgctttcgt ggacgaccct | 7320 |
| gacgccgggt aaaccaaata cgctgaattt ttacgcccgg ctaatggcga cacaggtgcc | 7380 |
| tgtcactgcg gggcatatca atgccacggc taccttcact cttgaatatc agtaactgga | 7440 |
| gatgctcatg aaatgggtgca aacgtgggta tgtattggcg gcaatattgg cgctcgcaag | 7500 |
| tgcgacgata caggcagccg atgtcaccat cacggtgaac ggtaaggctc tcgccaaacc | 7560 |
| gtgtacgggt tccaccacca atgccacggc tgatctcggc gatctttatt ctttcagtct | 7620 |
| tatgtctgcc ggggcggcat cggcctggca tgatgttgcg cttgagttga ctaattgtcc | 7680 |
| ggtgggaacg tcgaggggtca ctgccagctt cagcggggca gccgacagta ccggatatta | 7740 |
| taaaaaccag gggaccgcgc aaaacatcca gttagagcta caggatgaca gtggcaacac | 7800 |
| attgaatact ggcgcaacca aaacagttca ggtggatgat tcctcacaat cagcgcactt | 7860 |
| cccgttacag gtcagagcat tgacagtaaa tggcggagcc actcaggga ccattcaggc | 7920 |
| agtgattagc atcacctata cctacagctg aacccgaaga gatgattgta atgaaacgag | 7980 |
| ttattaccct gtttgctgta ctgctgatgg gctggtcggt aaatgcctgg tcattcgcct | 8040 |
| gtaaaaccgc caatggtacc gagctogaat tcaactggccg tcgtttttaca acgtcgtgac | 8100 |
| tgggaaaacc ctggcggttac ccaacttaat cgccttgagc cacatcccc tttcgcacgc | 8160 |
| tggcgtaata gcgaagaggc ccgcaccgat cgccttccc aacagttgag cagcctgaat | 8220 |
| ggcgaatggc gcctgatgag gtattttctc cttacgcac tggtcggtat ttcacaccgc | 8280 |
| atatgggtgca ctctcagtag aatctgctct gatgccgcat agttaagcca gccccgacac | 8340 |
| ccgccaacac ccgctgacgc gccctgacgg gcttgtctgc tcccggcatc cgcttacaga | 8400 |
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 1 5 10

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<210> 210
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Cys Arg Thr Gln Asp Met Cys Pro Asp Val Met Ser Ala Gly Glu Ser
 35 40 45

Lys His Gly Leu Thr Asn Thr Ala Ser His Thr Arg Leu Ser Cys Asp
 50 55 60

Cys Asp Asp Lys Phe Tyr Asp Cys Leu Lys Asn Ser Ala Asp Thr Ile
 65 70 75 80

Ser Ser Tyr Phe Val Gly Lys Met Tyr Phe Asn Leu Ile Asp Thr Lys
 85 90 95

Cys Tyr Lys Leu Glu His Pro Val Thr Gly Cys Gly Glu Arg Thr Glu
 100 105 110

Gly Arg Cys Leu His Tyr Thr Val Asp Lys Ser Lys Pro Lys Val Tyr
 115 120 125

Gln Trp Phe Asp Leu Arg Lys Tyr Ala Ala Ala Ser Gly Gly Cys Gly
 130 135 140

Gly
 145

<210> 211
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 <213> Ce4mimotope

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1              5              10              15

Ala

<210> 212
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<212> PRT
<213> Synthetic M2 Peptide

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Arg Cys Asn Gly Ser Ser Asp Gly Gly Gly Cys
              20              25

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<212> PRT
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Cys Arg Cys Asn Gly Ser Ser Asp Pro Leu Ala Ile Ala Ala Asn Ile
              20              25              30

Ile Gly Ile Leu His Leu Ile Leu Trp Ile Leu Asp Arg Leu Phe Phe
              35              40              45

Lys Cys Ile Tyr Arg Arg Phe Lys Tyr Gly Leu Lys Gly Gly Pro Ser
              50              55              60

Thr Glu Gly Val Pro Lys Ser Met Arg Glu Glu Tyr Arg Lys Glu Gln
65              70              75              80

Gln Ser Ala Val Asp Ala Asp Asp Gly His Phe Val Ser Ile Glu Leu
              85              90              95

Glu

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| <212> | DNA |
| <213> | Oligonucleotide |

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42

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| <210> | 215 |
| <211> | 129 |

<212> PRT
<213> Bacteriophage f2

<400> 215

Ala Ser Asn Phe Thr Gln Phe Val Leu Val Asn Asp Gly Gly Thr Gly
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Asn Val Thr Val Ala Pro Ser Asn Phe Ala Asn Gly Val Ala Glu Trp
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Ile Ser Ser Asn Ser Arg Ser Gln Ala Tyr Lys Val Thr Cys Ser Val
35 40 45
Arg Gln Ser Ser Ala Gln Asn Arg Lys Tyr Thr Ile Lys Val Glu Val
50 55 60
Pro Lys Val Ala Thr Gln Thr Val Gly Gly Val Glu Leu Pro Val Ala
65 70 75 80
Ala Trp Arg Ser Tyr Leu Asn Leu Glu Leu Thr Ile Pro Ile Phe Ala
85 90 95
Thr Asn Ser Asp Cys Glu Leu Ile Val Lys Ala Met Gln Gly Leu Leu
100 105 110
Lys Asp Gly Asn Pro Ile Pro Ser Ala Ile Ala Ala Asn Ser Gly Ile
115 120 125

Tyr

<210> 216
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<212> PRT
<213> Circular Mimotope

<400> 216

Gly Glu Phe Cys Ile Asn His Arg Gly Tyr Trp Val Cys Gly Asp Pro
1 5 10 15

Ala

<210> 217
<211> 329
<212> PRT
<213> Bacteriophage Q-beta

<400> 217

Met Ala Lys Leu Glu Thr Val Thr Leu Gly Asn Ile Gly Lys Asp Gly
1 5 10 15
Lys Gln Thr Leu Val Leu Asn Pro Arg Gly Val Asn Pro Thr Asn Gly
20 25 30
Val Ala Ser Leu Ser Gln Ala Gly Ala Val Pro Ala Leu Glu Lys Arg
35 40 45

| | | | | | | | | | | | | | | | |
|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| Val 50 | Thr | Val | Ser | Val | Ser | Gln 55 | Pro | Ser | Arg | Asn | Arg 60 | Lys | Asn | Tyr | Lys |
| Val 65 | Gln | Val | Lys | Ile | Gln 70 | Asn | Pro | Thr | Ala | Cys 75 | Thr | Ala | Asn | Gly | Ser 80 |
| Cys | Asp | Pro | Ser | Val 85 | Thr | Arg | Gln | Ala | Tyr 90 | Ala | Asp | Val | Thr | Phe | Ser 95 |
| Phe | Thr | Gln | Tyr 100 | Ser | Thr | Asp | Glu | Glu 105 | Arg | Ala | Phe | Val | Arg 110 | Thr | Glu |
| Leu | Ala | Ala 115 | Leu | Leu | Ala | Ser | Pro 120 | Leu | Leu | Ile | Asp | Ala 125 | Ile | Asp | Gln |
| Leu | Asn 130 | Pro | Ala | Tyr | Trp | Thr 135 | Leu | Leu | Ile | Ala | Gly 140 | Gly | Gly | Ser | Gly |
| Ser 145 | Lys | Pro | Asp | Pro | Val 150 | Ile | Pro | Asp | Pro | Pro 155 | Ile | Asp | Pro | Pro | Pro 160 |
| Gly | Thr | Gly | Lys | Tyr 165 | Thr | Cys | Pro | Phe | Ala 170 | Ile | Trp | Ser | Leu | Glu 175 | Glu |
| Val | Tyr | Glu | Pro 180 | Pro | Thr | Lys | Asn | Arg 185 | Pro | Trp | Pro | Ile | Tyr 190 | Asn | Ala |
| Val | Glu | Leu 195 | Gln | Pro | Arg | Glu | Phe 200 | Asp | Val | Ala | Leu | Lys 205 | Asp | Leu | Leu |
| Gly | Asn 210 | Thr | Lys | Trp | Arg | Asp 215 | Trp | Asp | Ser | Arg | Leu 220 | Ser | Tyr | Thr | Thr |
| Phe 225 | Arg | Gly | Cys | Arg | Gly 230 | Asn | Gly | Tyr | Ile | Asp 235 | Leu | Asp | Ala | Thr | Tyr 240 |
| Leu | Ala | Thr | Asp | Gln 245 | Ala | Met | Arg | Asp | Gln 250 | Lys | Tyr | Asp | Ile | Arg 255 | Glu |
| Gly | Lys | Lys | Pro 260 | Gly | Ala | Phe | Gly | Asn 265 | Ile | Glu | Arg | Phe | Ile 270 | Tyr | Leu |
| Lys | Ser 275 | Ile | Asn | Ala | Tyr | Cys | Ser 280 | Leu | Ser | Asp | Ile | Ala 285 | Ala | Tyr | His |
| Ala | Asp 290 | Gly | Val | Ile | Val | Gly 295 | Phe | Trp | Arg | Asp | Pro 300 | Ser | Ser | Gly | Gly |
| Ala 305 | Ile | Pro | Phe | Asp | Phe 310 | Thr | Lys | Phe | Asp | Lys 315 | Thr | Lys | Cys | Pro | Ile 320 |
| Gln | Ala | Val | Ile | Val 325 | Val | Pro | Arg | Ala | | | | | | | |

| | |
|-------|-----|
| <210> | 218 |
| <211> | 770 |
| <212> | PRT |

<213> Amyloid-Beta Protein (Homo Sapiens)

<400> 218

| | | | | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Leu | Pro | Gly | Leu | Ala | Leu | Leu | Leu | Leu | Ala | Ala | Trp | Thr | Ala | Arg | 1 | 5 | 10 | 15 |
| Ala | Leu | Glu | Val | Pro | Thr | Asp | Gly | Asn | Ala | Gly | Leu | Leu | Ala | Glu | Pro | 20 | 25 | 30 | |
| Gln | Ile | Ala | Met | Phe | Cys | Gly | Arg | Leu | Asn | Met | His | Met | Asn | Val | Gln | 35 | 40 | 45 | |
| Asn | Gly | Lys | Trp | Asp | Ser | Asp | Pro | Ser | Gly | Thr | Lys | Thr | Cys | Ile | Asp | 50 | 55 | 60 | |
| Thr | Lys | Glu | Gly | Ile | Leu | Gln | Tyr | Cys | Gln | Glu | Val | Tyr | Pro | Glu | Leu | 65 | 70 | 75 | 80 |
| Gln | Ile | Thr | Asn | Val | Val | Glu | Ala | Asn | Gln | Pro | Val | Thr | Ile | Gln | Asn | 85 | 90 | 95 | |
| Trp | Cys | Lys | Arg | Gly | Arg | Lys | Gln | Cys | Lys | Thr | His | Pro | His | Phe | Val | 100 | 105 | 110 | |
| Ile | Pro | Tyr | Arg | Cys | Leu | Val | Gly | Glu | Phe | Val | Ser | Asp | Ala | Leu | Leu | 115 | 120 | 125 | |
| Val | Pro | Asp | Lys | Cys | Lys | Phe | Leu | His | Gln | Glu | Arg | Met | Asp | Val | Cys | 130 | 135 | 140 | |
| Glu | Thr | His | Leu | His | Trp | His | Thr | Val | Ala | Lys | Glu | Thr | Cys | Ser | Glu | 145 | 150 | 155 | 160 |
| Lys | Ser | Thr | Asn | Leu | His | Asp | Tyr | Gly | Met | Leu | Leu | Pro | Cys | Gly | Ile | 165 | 170 | 175 | |
| Asp | Lys | Phe | Arg | Gly | Val | Glu | Phe | Val | Cys | Cys | Pro | Leu | Ala | Glu | Glu | 180 | 185 | 190 | |
| Ser | Asp | Asn | Val | Asp | Ser | Ala | Asp | Ala | Glu | Glu | Asp | Asp | Ser | Asp | Val | 195 | 200 | 205 | |
| Trp | Trp | Gly | Gly | Ala | Asp | Thr | Asp | Tyr | Ala | Asp | Gly | Ser | Glu | Asp | Lys | 210 | 215 | 220 | |
| Val | Val | Glu | Val | Ala | Glu | Glu | Glu | Glu | Val | Ala | Glu | Val | Glu | Glu | Glu | 225 | 230 | 235 | 240 |
| Glu | Ala | Asp | Asp | Asp | Glu | Asp | Asp | Glu | Asp | Gly | Asp | Glu | Val | Glu | Glu | 245 | 250 | 255 | |
| Glu | Ala | Glu | Glu | Pro | Tyr | Glu | Glu | Ala | Thr | Glu | Arg | Thr | Thr | Ser | Ile | 260 | 265 | 270 | |
| Ala | Thr | Thr | Thr | Thr | Thr | Thr | Thr | Glu | Ser | Val | Glu | Glu | Val | Val | Arg | 275 | 280 | 285 | |
| Glu | Val | Cys | Ser | Glu | Gln | Ala | Glu | Thr | Gly | Pro | Cys | Arg | Ala | Met | Ile | 290 | 295 | 300 | |
| Ser | Arg | Trp | Tyr | Phe | Asp | Val | Thr | Glu | Gly | Lys | Cys | Ala | Pro | Phe | Phe | 305 | 310 | 315 | 320 |

| | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Tyr | Gly | Gly | Cys | Gly | Gly | Asn | Arg | Asn | Asn | Phe | Asp | Thr | Glu | Glu | Tyr | |
| | | | | 325 | | | | | 330 | | | | | | 335 | |
| Cys | Met | Ala | Val | Cys | Gly | Ser | Ala | Met | Ser | Gln | Ser | Leu | Leu | Lys | Thr | |
| | | | 340 | | | | | 345 | | | | | | 350 | | |
| Thr | Gln | Glu | Pro | Leu | Ala | Arg | Asp | Pro | Val | Lys | Leu | Pro | Thr | Thr | Ala | |
| | | 355 | | | | | 360 | | | | | | 365 | | | |
| Ala | Ser | Thr | Pro | Asp | Ala | Val | Asp | Lys | Tyr | Leu | Glu | Thr | Pro | Gly | Asp | |
| | 370 | | | | | | 375 | | | | | 380 | | | | |
| Glu | Asn | Glu | His | Ala | His | Phe | Gln | Lys | Ala | Lys | Glu | Arg | Leu | Glu | Ala | |
| 385 | | | | | 390 | | | | | 395 | | | | | | 400 |
| Lys | His | Arg | Glu | Arg | Met | Ser | Gln | Val | Met | Arg | Glu | Trp | Glu | Glu | Ala | |
| | | | | 405 | | | | | 410 | | | | | | 415 | |
| Glu | Arg | Gln | Ala | Lys | Asn | Leu | Pro | Lys | Ala | Asp | Lys | Lys | Ala | Val | Ile | |
| | | | 420 | | | | | 425 | | | | | | 430 | | |
| Gln | His | Phe | Gln | Glu | Lys | Val | Glu | Ser | Leu | Glu | Gln | Glu | Ala | Ala | Asn | |
| | | 435 | | | | | | 440 | | | | | 445 | | | |
| Glu | Arg | Gln | Gln | Leu | Val | Glu | Thr | His | Met | Ala | Arg | Val | Glu | Ala | Met | |
| | 450 | | | | | 455 | | | | | 460 | | | | | |
| Leu | Asn | Asp | Arg | Arg | Arg | Leu | Ala | Leu | Glu | Asn | Tyr | Ile | Thr | Ala | Leu | |
| 465 | | | | | 470 | | | | | 475 | | | | | 480 | |
| Gln | Ala | Val | Pro | Pro | Arg | Pro | Arg | His | Val | Phe | Asn | Met | Leu | Lys | Lys | |
| | | | | 485 | | | | | 490 | | | | | | 495 | |
| Tyr | Val | Arg | Ala | Glu | Gln | Lys | Asp | Arg | Gln | His | Thr | Leu | Lys | His | Phe | |
| | | | 500 | | | | | 505 | | | | | | 510 | | |
| Glu | His | Val | Arg | Met | Val | Asp | Pro | Lys | Lys | Ala | Ala | Gln | Ile | Arg | Ser | |
| | | 515 | | | | | 520 | | | | | | 525 | | | |
| Gln | Val | Met | Thr | His | Leu | Arg | Val | Ile | Tyr | Glu | Arg | Met | Asn | Gln | Ser | |
| | 530 | | | | | 535 | | | | | | 540 | | | | |
| Leu | Ser | Leu | Leu | Tyr | Asn | Val | Pro | Ala | Val | Ala | Glu | Glu | Ile | Gln | Asp | |
| 545 | | | | | 550 | | | | | 555 | | | | | 560 | |
| Glu | Val | Asp | Glu | Leu | Leu | Gln | Lys | Glu | Gln | Asn | Tyr | Ser | Asp | Asp | Val | |
| | | | | 565 | | | | | 570 | | | | | | 575 | |
| Leu | Ala | Asn | Met | Ile | Ser | Glu | Pro | Arg | Ile | Ser | Tyr | Gly | Asn | Asp | Ala | |
| | | | 580 | | | | | 585 | | | | | | 590 | | |
| Leu | Met | Pro | Ser | Leu | Thr | Glu | Thr | Lys | Thr | Thr | Val | Glu | Leu | Leu | Pro | |
| | | 595 | | | | | 600 | | | | | | 605 | | | |
| Val | Asn | Gly | Glu | Phe | Ser | Leu | Asp | Asp | Leu | Gln | Pro | Trp | His | Ser | Phe | |
| | 610 | | | | | 615 | | | | | 620 | | | | | |
| Gly | Ala | Asp | Ser | Val | Pro | Ala | Asn | Thr | Glu | Asn | Glu | Val | Glu | Pro | Val | |
| 625 | | | | | 630 | | | | | 635 | | | | | 640 | |
| Asp | Ala | Arg | Pro | Ala | Ala | Asp | Arg | Gly | Leu | Thr | Thr | Arg | Pro | Gly | Ser | |

| 645 | | | | | | | 650 | | | | | | 655 | | | |
|------------|------------|------------|------------|-----|------------|-----|------------|------------|------------|------------|------------|------------|------------|-----|------------|--|
| Gly | Leu | Thr | Asn 660 | Ile | Lys | Thr | Glu | Glu 665 | Ile | Ser | Glu | Val | Lys 670 | Met | Asp | |
| Ala | Glu | Phe 675 | Arg | His | Asp | Ser | Gly 680 | Tyr | Glu | Val | His | His 685 | Gln | Lys | Leu | |
| Val | Phe 690 | Phe | Ala | Glu | Asp 695 | Val | Gly | Ser | Asn | Lys | Gly 700 | Ala | Ile | Ile | Gly | |
| Leu 705 | Met | Val | Gly | Gly | Val 710 | Val | Ile | Ala | Thr | Val 715 | Ile | Val | Ile | Thr | Leu 720 | |
| Val | Met | Leu | Lys 725 | Lys | Lys | Gln | Tyr | Thr | Ser 730 | Ile | His | His | Gly 735 | Val | Val | |
| Glu | Val | Asp 740 | Ala | Ala | Val | Thr | Pro | Glu 745 | Glu | Arg | His | Leu | Ser 750 | Lys | Met | |
| Gln | Gln | Asn 755 | Gly | Tyr | Glu | Asn | Pro 760 | Thr | Tyr | Lys | Phe | Phe 765 | Glu | Gln | Met | |
| Gln | Asn 770 | | | | | | | | | | | | | | | |

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<213> Beta-Amyloid Peptide Precursor (Homo Sapiens)
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<400> 219

[illegible]

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Leu Val Phe Phe Ala Glu Asp Val Gly Ser Asn Lys Gly Ala Ile Ile
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Gly Leu Met Val Gly Gly Val Val Ile Ala
 35 40

<210> 221
<211> 249
<212> PRT
<213> Homo sapiens

<400> 221
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His Cys Ile Tyr Arg Ile Leu Arg Leu His Glu Asn Ala Asp Phe Gln
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Asp Thr Thr Leu Glu Ser Gln Asp Thr Lys Leu Ile Pro Asp Ser Cys
 35 40 45

Arg Arg Ile Lys Gln Ala Phe Gln Gly Ala Val Gln Lys Glu Leu Gln
 50 55 60

His Ile Val Gly Ser Gln His Ile Arg Ala Glu Lys Ala Met Val Asp
65 70 75 80

Gly Ser Trp Leu Asp Leu Ala Lys Arg Ser Lys Leu Glu Ala Gln Pro
 85 90 95

Phe Ala His Leu Thr Ile Asn Ala Thr Asp Ile Pro Ser Gly Ser His
 100 105 110

Lys Val Ser Leu Ser Ser Trp Tyr His Asp Arg Gly Trp Ala Lys Ile
 115 120 125

Ser Asn Met Thr Phe Ser Asn Gly Lys Leu Ile Val Asn Gln Asp Gly
 130 135 140

Phe Tyr Tyr Leu Tyr Ala Asn Ile Cys Phe Arg His His Glu Thr Ser
145 150 155 160

Gly Asp Leu Ala Thr Glu Tyr Leu Gln Leu Met Val Tyr Val Thr Lys
 165 170 175

Thr Ser Ile Lys Ile Pro Ser Ser His Thr Leu Met Lys Gly Gly Ser

180

185

190

Thr Lys Tyr Trp Ser Gly Asn Ser Glu Phe His Phe Tyr Ser Ile Asn
195 200 205

Val Gly Gly Phe Phe Lys Leu Arg Ser Gly Glu Glu Ile Ser Ile Glu
210 215 220

Val Ser Asn Pro Ser Leu Leu Asp Pro Asp Gln Asp Ala Thr Tyr Phe
225 230 235 240

Gly Ala Phe Lys Val Arg Asp Ile Asp
245

<210> 222

<211> 244

<212> PRT

<213> Homo sapiens

<400> 222

Met Asp Pro Asn Arg Ile Ser Glu Asp Gly Thr His Cys Ile Tyr Arg
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Ile Leu Arg Leu His Glu Asn Ala Asp Phe Gln Asp Thr Thr Leu Glu
20 25 30

Ser Gln Asp Thr Lys Leu Ile Pro Asp Ser Cys Arg Arg Ile Lys Gln
35 40 45

Ala Phe Gln Gly Ala Val Gln Lys Glu Leu Gln His Ile Val Gly Ser
50 55 60

Gln His Ile Arg Ala Glu Lys Ala Met Val Asp Gly Ser Trp Leu Asp
65 70 75 80

Leu Ala Lys Arg Ser Lys Leu Glu Ala Gln Pro Phe Ala His Leu Thr
85 90 95

Ile Asn Ala Thr Asp Ile Pro Ser Gly Ser His Lys Val Ser Leu Ser
100 105 110

Ser Trp Tyr His Asp Arg Gly Trp Ala Lys Ile Ser Asn Met Thr Phe
115 120 125

Ser Asn Gly Lys Leu Ile Val Asn Gln Asp Gly Phe Tyr Tyr Leu Tyr
130 135 140

Ala Asn Ile Cys Phe Arg His His Glu Thr Ser Gly Asp Leu Ala Thr
145 150 155 160

Glu Tyr Leu Gln Leu Met Val Tyr Val Thr Lys Thr Ser Ile Lys Ile
165 170 175

Pro Ser Ser His Thr Leu Met Lys Gly Gly Ser Thr Lys Tyr Trp Ser
180 185 190

Gly Asn Ser Glu Phe His Phe Tyr Ser Ile Asn Val Gly Gly Phe Phe
195 200 205

Lys Leu Arg Ser Gly Glu Glu Ile Ser Ile Glu Val Ser Asn Pro Ser
210 215 220

Leu Leu Asp Pro Asp Gln Asp Ala Thr Tyr Phe Gly Ala Phe Lys Val
225 230 235 240

Arg Asp Ile Asp

<210> 223

<211> 247

<212> PRT

<213> Mus musculus

<400> 223

Tyr Phe Arg Ala Gln Met Asp Pro Asn Arg Ile Ser Glu Asp Ser Thr
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His Cys Phe Tyr Arg Ile Leu Arg Leu His Glu Asn Ala Gly Leu Gln
20 25 30

Asp Ser Thr Leu Glu Ser Glu Asp Thr Leu Pro Asp Ser Cys Arg Arg
35 40 45

Met Lys Gln Ala Phe Gln Gly Ala Val Gln Lys Glu Leu Gln His Ile
50 55 60

Val Gly Pro Gln Arg Phe Ser Gly Ala Pro Ala Met Met Glu Gly Ser
65 70 75 80

Trp Leu Asp Val Ala Gln Arg Gly Lys Pro Glu Ala Gln Pro Phe Ala
85 90 95

His Leu Thr Ile Asn Ala Ala Ser Ile Pro Ser Gly Ser His Lys Val

| | | |
|--|-----|-----|
| 100 | 105 | 110 |
| Thr Leu Ser Ser Trp Tyr His Asp Arg Gly Trp Ala Lys Ile Ser Asn 115 120 125 | | |
| Met Thr Leu Ser Asn Gly Lys Leu Arg Val Asn Gln Asp Gly Phe Tyr 130 135 140 | | |
| Tyr Leu Tyr Ala Asn Ile Cys Phe Arg His His Glu Thr Ser Gly Ser 145 150 155 160 | | |
| Val Pro Thr Asp Tyr Leu Gln Leu Met Val Tyr Val Val Lys Thr Ser 165 170 175 | | |
| Ile Lys Ile Pro Ser Ser His Asn Leu Met Lys Gly Gly Ser Thr Lys 180 185 190 | | |
| Asn Trp Ser Gly Asn Ser Glu Phe His Phe Tyr Ser Ile Asn Val Gly 195 200 205 | | |
| Gly Phe Phe Lys Leu Arg Ala Gly Glu Glu Ile Ser Ile Gln Val Ser 210 215 220 | | |
| Asn Pro Ser Leu Leu Asp Pro Asp Gln Asp Ala Thr Tyr Phe Gly Ala 225 230 235 240 | | |
| Phe Lys Val Gln Asp Ile Asp 245 | | |

<210> 224
 <211> 199
 <212> PRT
 <213> Mus musculus

<400> 224

| |
|--|
| Met Lys Gln Ala Phe Gln Gly Ala Val Gln Lys Glu Leu Gln His Ile 1 5 10 15 |
| Val Gly Pro Gln Arg Phe Ser Gly Ala Pro Ala Met Met Glu Gly Ser 20 25 30 |
| Trp Leu Asp Val Ala Gln Arg Gly Lys Pro Glu Ala Gln Pro Phe Ala 35 40 45 |
| His Leu Thr Ile Asn Ala Ala Ser Ile Pro Ser Gly Ser His Lys Val 50 55 60 |

Thr Leu Ser Ser Trp Tyr His Asp Arg Gly Trp Ala Lys Ile Ser Asn
65 70 75 80

Met Thr Leu Ser Asn Gly Lys Leu Arg Val Asn Gln Asp Gly Phe Tyr
85 90 95

Tyr Leu Tyr Ala Asn Ile Cys Phe Arg His His Glu Thr Ser Gly Ser
100 105 110

Val Pro Thr Asp Tyr Leu Gln Leu Met Val Tyr Val Val Lys Thr Ser
115 120 125

Ile Lys Ile Pro Ser Ser His Asn Leu Met Lys Gly Gly Ser Thr Lys
130 135 140

Asn Trp Ser Gly Asn Ser Glu Phe His Phe Tyr Ser Ile Asn Val Gly
145 150 155 160

Gly Phe Phe Lys Leu Arg Ala Gly Glu Glu Ile Ser Ile Gln Val Ser
165 170 175

Asn Pro Ser Leu Leu Asp Pro Asp Gln Asp Ala Thr Tyr Phe Gly Ala
180 185 190

Phe Lys Val Gln Asp Ile Asp
195

<210> 225

<211> 114

<212> PRT

<213> Rattus sp.

<400> 225

Pro Met Phe Ile Val Asn Thr Asn Val Pro Arg Ala Ser Val Pro Glu
1 5 10 15

Gly Phe Leu Ser Glu Leu Thr Gln Gln Leu Ala Gln Ala Thr Gly Lys
20 25 30

Pro Ala Gln Tyr Ile Ala Val His Val Val Pro Asp Gln Leu Met Thr
35 40 45

Phe Ser Gly Thr Ser Asp Pro Cys Ala Leu Cys Ser Leu His Ser Ile
50 55 60

Gly Lys Ile Gly Gly Ala Gln Asn Arg Asn Tyr Ser Lys Leu Leu Cys

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 65 | | 70 | | 75 | | 80 | | | | | | | | | |
| Gly | Leu | Leu | Ser | Asp | Arg | Leu | His | Ile | Ser | Pro | Asp | Arg | Val | Tyr | Ile |
| | | | 85 | | | | | | 90 | | | | | 95 | |

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Asn | Tyr | Tyr | Asp | Met | Asn | Ala | Ala | Asn | Val | Gly | Trp | Asn | Gly | Ser | Thr |
| | | | 100 | | | | | 105 | | | | | 110 | | |

Phe Ala

<210> 226
 <211> 114
 <212> PRT
 <213> Mus musculus

<400> 226

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Pro | Met | Phe | Ile | Val | Asn | Thr | Asn | Val | Pro | Arg | Ala | Ser | Val | Pro | Glu |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | |

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Gly | Phe | Leu | Ser | Glu | Leu | Thr | Gln | Gln | Leu | Ala | Gln | Ala | Thr | Gly | Lys |
| | | 20 | | | | | | 25 | | | | | 30 | | |

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Pro | Ala | Gln | Tyr | Ile | Ala | Val | His | Val | Val | Pro | Asp | Gln | Leu | Met | Thr |
| | 35 | | | | | | 40 | | | | | 45 | | | |

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Phe | Ser | Gly | Thr | Asn | Asp | Pro | Cys | Ala | Leu | Cys | Ser | Leu | His | Ser | Ile |
| | 50 | | | | | 55 | | | | | 60 | | | | |

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Gly | Lys | Ile | Gly | Gly | Ala | Gln | Asn | Arg | Asn | Tyr | Ser | Lys | Leu | Leu | Cys |
| 65 | | | | | 70 | | | | | 75 | | | | | 80 |

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Gly | Leu | Leu | Ser | Asp | Arg | Leu | His | Ile | Ser | Pro | Asp | Arg | Val | Tyr | Ile |
| | | | | 85 | | | | | 90 | | | | | 95 | |

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Asn | Tyr | Tyr | Asp | Met | Asn | Ala | Ala | Asn | Val | Gly | Trp | Asn | Gly | Ser | Thr |
| | | | 100 | | | | | 105 | | | | | 110 | | |

Phe Ala

<210> 227
 <211> 114
 <212> PRT
 <213> Homo sapiens

<400> 227

Pro Met Phe Ile Val Asn Thr Asn Val Pro Arg Ala Ser Val Pro Asp
1 5 10 15

Gly Phe Leu Ser Glu Leu Thr Gln Gln Leu Ala Gln Ala Thr Gly Lys
20 25 30

Pro Pro Gln Tyr Ile Ala Val His Val Val Pro Asp Gln Leu Met Ala
35 40 45

Phe Gly Gly Ser Ser Glu Pro Cys Ala Leu Cys Ser Leu His Ser Ile
50 55 60

Gly Lys Ile Gly Gly Ala Gln Asn Arg Ser Tyr Ser Lys Leu Leu Cys
65 70 75 80

Gly Leu Leu Ala Glu Arg Leu Arg Ile Ser Pro Asp Arg Val Tyr Ile
85 90 95

Asn Tyr Tyr Asp Met Asn Ala Ala Asn Val Gly Trp Asn Asn Ser Thr
100 105 110

Phe Ala

<210> 228
<211> 155
<212> PRT
<213> Homo sapiens

<400> 228

Met Thr Pro Gly Lys Thr Ser Leu Val Ser Leu Leu Leu Leu Leu Ser
1 5 10 15

Leu Glu Ala Ile Val Lys Ala Gly Ile Thr Ile Pro Arg Asn Pro Gly
20 25 30

Cys Pro Asn Ser Glu Asp Lys Asn Phe Pro Arg Thr Val Met Val Asn
35 40 45

Leu Asn Ile His Asn Arg Asn Thr Asn Thr Asn Pro Lys Arg Ser Ser
50 55 60

Asp Tyr Tyr Asn Arg Ser Thr Ser Pro Trp Asn Leu His Arg Asn Glu
65 70 75 80

Asp Pro Glu Arg Tyr Pro Ser Val Ile Trp Glu Ala Lys Cys Arg His
85 90 95

Leu Gly Cys Ile Asn Ala Asp Gly Asn Val Asp Tyr His Met Asn Ser
100 105 110

Val Pro Ile Gln Gln Glu Ile Leu Val Leu Arg Arg Glu Pro Pro His
115 120 125

Cys Pro Asn Ser Phe Arg Leu Glu Lys Ile Leu Val Ser Val Gly Cys
130 135 140

Thr Cys Val Thr Pro Ile Val His His Val Ala
145 150 155

<210> 229

<211> 158

<212> PRT

<213> Mus musculus

<400> 229

Met Ser Pro Gly Arg Ala Ser Ser Val Ser Leu Met Leu Leu Leu Leu
1 5 10 15

Leu Ser Leu Ala Ala Thr Val Lys Ala Ala Ala Ile Ile Pro Gln Ser
20 25 30

Ser Ala Cys Pro Asn Thr Glu Ala Lys Asp Phe Leu Gln Asn Val Lys
35 40 45

Val Asn Leu Lys Val Phe Asn Ser Leu Gly Ala Lys Val Ser Ser Arg
50 55 60

Arg Pro Ser Asp Tyr Leu Asn Arg Ser Thr Ser Pro Trp Thr Leu His
65 70 75 80

Arg Asn Glu Asp Pro Asp Arg Tyr Pro Ser Val Ile Trp Glu Ala Gln
85 90 95

Cys Arg His Gln Arg Cys Val Asn Ala Glu Gly Lys Leu Asp His His
100 105 110

Met Asn Ser Val Leu Ile Gln Gln Glu Ile Leu Val Leu Lys Arg Glu
115 120 125

Pro Glu Ser Cys Pro Phe Thr Phe Arg Val Glu Lys Met Leu Val Gly
130 135 140

Val Gly Cys Thr Cys Val Ala Ser Ile Val Arg Gln Ala Ala
145 150 155

<210> 230
<211> 132
<212> PRT
<213> Homo sapiens

<400> 230

Met Ala Leu Leu Leu Thr Thr Val Ile Ala Leu Thr Cys Leu Gly Gly
1 5 10 15

Phe Ala Ser Pro Gly Pro Val Pro Pro Ser Thr Ala Leu Arg Glu Leu
20 25 30

Ile Glu Glu Leu Val Asn Ile Thr Gln Asn Gln Lys Ala Pro Leu Cys
35 40 45

Asn Gly Ser Met Val Trp Ser Ile Asn Leu Thr Ala Gly Met Tyr Cys
50 55 60

Ala Ala Leu Glu Ser Leu Ile Asn Val Ser Gly Cys Ser Ala Ile Glu
65 70 75 80

Lys Thr Gln Arg Met Leu Ser Gly Phe Cys Pro His Lys Val Ser Ala
85 90 95

Gly Gln Phe Ser Ser Leu His Val Arg Asp Thr Lys Ile Glu Val Ala
100 105 110

Gln Phe Val Lys Asp Leu Leu Leu His Leu Lys Lys Leu Phe Arg Glu
115 120 125

Gly Arg Phe Asn
130

<210> 231
<211> 112
<212> PRT
<213> Homo sapiens

<400> 231

Gly Pro Val Pro Pro Ser Thr Ala Leu Arg Glu Leu Ile Glu Glu Leu
1 5 10 15

Val Asn Ile Thr Gln Asn Gln Lys Ala Pro Leu Cys Asn Gly Ser Met
20 25 30

Val Trp Ser Ile Asn Leu Thr Ala Gly Met Tyr Cys Ala Ala Leu Glu
35 40 45

Ser Leu Ile Asn Val Ser Gly Cys Ser Ala Ile Glu Lys Thr Gln Arg
50 55 60

Met Leu Ser Gly Phe Cys Pro His Lys Val Ser Ala Gly Gln Phe Ser
65 70 75 80

Ser Leu His Val Arg Asp Thr Lys Ile Glu Val Ala Gln Phe Val Lys
85 90 95

Asp Leu Leu Leu His Leu Lys Lys Leu Phe Arg Glu Gly Arg Phe Asn
100 105 110

<210> 232
<211> 111
<212> PRT
<213> Mus musculus

<400> 232

Gly Pro Val Pro Arg Ser Val Ser Leu Pro Leu Thr Leu Lys Glu Leu
1 5 10 15

Ile Glu Glu Leu Ser Asn Ile Thr Gln Asp Gln Thr Pro Leu Cys Asn
20 25 30

Gly Ser Met Val Trp Ser Val Asp Leu Ala Ala Gly Gly Phe Cys Val
35 40 45

Ala Leu Asp Ser Leu Thr Asn Ile Ser Asn Cys Asn Ala Ile Tyr Arg
50 55 60

Thr Gln Arg Ile Leu His Gly Leu Cys Asn Arg Lys Ala Pro Thr Thr
65 70 75 80

Val Ser Ser Leu Pro Asp Thr Lys Ile Glu Val Ala His Phe Ile Thr
85 90 95

Lys Leu Leu Ser Tyr Thr Lys Gln Leu Phe Arg His Gly Pro Phe
100 105 110

<210> 233
<211> 134
<212> PRT
<213> Homo sapiens

<400> 233

Met Arg Met Leu Leu His Leu Ser Leu Leu Ala Leu Gly Ala Ala Tyr
1 5 10 15

Val Tyr Ala Ile Pro Thr Glu Ile Pro Thr Ser Ala Leu Val Lys Glu
20 25 30

Thr Leu Ala Leu Leu Ser Thr His Arg Thr Leu Leu Ile Ala Asn Glu
35 40 45

Thr Leu Arg Ile Pro Val Pro Val His Lys Asn His Gln Leu Cys Thr
50 55 60

Glu Glu Ile Phe Gln Gly Ile Gly Thr Leu Glu Ser Gln Thr Val Gln
65 70 75 80

Gly Gly Thr Val Glu Arg Leu Phe Lys Asn Leu Ser Leu Ile Lys Lys
85 90 95

Tyr Ile Asp Gly Gln Lys Lys Lys Cys Gly Glu Glu Arg Arg Arg Val
100 105 110

Asn Gln Phe Leu Asp Tyr Leu Gln Glu Phe Leu Gly Val Met Asn Thr
115 120 125

Glu Trp Ile Ile Glu Ser
130

<210> 234

<211> 115

<212> PRT

<213> Homo sapiens

<400> 234

Ile Pro Thr Glu Ile Pro Thr Ser Ala Leu Val Lys Glu Thr Leu Ala
1 5 10 15

Leu Leu Ser Thr His Arg Thr Leu Leu Ile Ala Asn Glu Thr Leu Arg
20 25 30

Ile Pro Val Pro Val His Lys Asn His Gln Leu Cys Thr Glu Glu Ile
35 40 45

Phe Gln Gly Ile Gly Thr Leu Glu Ser Gln Thr Val Gln Gly Gly Thr
50 55 60

Val Glu Arg Leu Phe Lys Asn Leu Ser Leu Ile Lys Lys Tyr Ile Asp
65 70 75 80

Gly Gln Lys Lys Lys Cys Gly Glu Glu Arg Arg Arg Val Asn Gln Phe
85 90 95

Leu Asp Tyr Leu Gln Glu Phe Leu Gly Val Met Asn Thr Glu Trp Ile
100 105 110

Ile Glu Ser
115

<210> 235
<211> 113
<212> PRT
<213> Mus musculus

<400> 235

Met Glu Ile Pro Met Ser Thr Val Val Lys Glu Thr Leu Thr Gln Leu
1 5 10 15

Ser Ala His Arg Ala Leu Leu Thr Ser Asn Glu Thr Met Arg Leu Pro
20 25 30

Val Pro Thr His Lys Asn His Gln Leu Cys Ile Gly Glu Ile Phe Gln
35 40 45

Gly Leu Asp Ile Leu Lys Asn Gln Thr Val Arg Gly Gly Thr Val Glu
50 55 60

Met Leu Phe Gln Asn Leu Ser Leu Ile Lys Lys Tyr Ile Asp Arg Gln
65 70 75 80

Lys Glu Lys Cys Gly Glu Glu Arg Arg Arg Thr Arg Gln Phe Leu Asp
85 90 95

Tyr Leu Gln Glu Phe Leu Gly Val Met Ser Thr Glu Trp Ala Met Glu
100 105 110

Gly

<210> 236
<211> 111
<212> PRT
<213> Homo sapiens

<400> 236

Ser Asp Gly Gly Ala Gln Asp Cys Cys Leu Lys Tyr Ser Gln Arg Lys
1 5 10 15

Ile Pro Ala Lys Val Val Arg Ser Tyr Arg Lys Gln Glu Pro Ser Leu
20 25 30

Gly Cys Ser Ile Pro Ala Ile Leu Phe Leu Pro Arg Lys Arg Ser Gln
35 40 45

Ala Glu Leu Cys Ala Asp Pro Lys Glu Leu Trp Val Gln Gln Leu Met
50 55 60

Gln His Leu Asp Lys Thr Pro Ser Pro Gln Lys Pro Ala Gln Gly Cys
65 70 75 80

Arg Lys Asp Arg Gly Ala Ser Lys Thr Gly Lys Lys Gly Lys Gly Ser
85 90 95

Lys Gly Cys Lys Arg Thr Glu Arg Ser Gln Thr Pro Lys Gly Pro
100 105 110

<210> 237

<211> 110

<212> PRT

<213> Mus musculus

<400> 237

Ser Asp Gly Gly Gly Gln Asp Cys Cys Leu Lys Tyr Ser Gln Lys Lys
1 5 10 15

Ile Pro Tyr Ser Ile Val Arg Gly Tyr Arg Lys Gln Glu Pro Ser Leu
20 25 30

Gly Cys Pro Ile Pro Ala Ile Leu Phe Ser Pro Arg Lys His Ser Lys
35 40 45

Pro Glu Leu Cys Ala Asn Pro Glu Glu Gly Trp Val Gln Asn Leu Met
50 55 60

Arg Arg Leu Asp Gln Pro Pro Ala Pro Gly Lys Gln Ser Pro Gly Cys
65 70 75 80

Arg Lys Asn Arg Gly Thr Ser Lys Ser Gly Lys Lys Gly Lys Gly Ser
85 90 95

Lys Gly Cys Lys Arg Thr Glu Gln Thr Gln Pro Ser Arg Gly

100

105

110

<210> 238
<211> 74
<212> PRT
<213> Homo sapiens

<400> 238

Asp Gly Lys Pro Val Ser Leu Ser Tyr Arg Cys Pro Cys Arg Phe Phe
1 5 10 15

Glu Ser His Val Ala Arg Ala Asn Val Lys His Leu Lys Ile Leu Asn
20 25 30

Thr Pro Asn Cys Ala Leu Gln Ile Val Ala Arg Leu Lys Asn Asn Asn
35 40 45

Arg Gln Val Cys Ile Asp Pro Lys Leu Lys Trp Ile Gln Glu Tyr Leu
50 55 60

Glu Lys Ala Leu Asn Lys Arg Phe Lys Met
65 70

<210> 239
<211> 70
<212> PRT
<213> Mus musculus

<400> 239

Asp Gly Lys Pro Val Ser Leu Ser Tyr Arg Cys Pro Cys Arg Phe Phe
1 5 10 15

Glu Ser His Ile Ala Arg Ala Asn Val Lys His Leu Lys Ile Leu Asn
20 25 30

Thr Pro Asn Cys Ala Leu Gln Ile Val Ala Arg Leu Lys Asn Asn Asn
35 40 45

Arg Gln Val Cys Ile Asp Pro Lys Leu Lys Trp Ile Gln Glu Tyr Leu
50 55 60

Glu Lys Ala Leu Asn Lys
65 70

<210> 240
<211> 109
<212> PRT
<213> Homo sapiens

<400> 240

Met Lys Phe Ile Ser Thr Ser Leu Leu Leu Met Leu Leu Val Ser Ser
1 5 10 15

Leu Ser Pro Val Gln Gly Val Leu Glu Val Tyr Tyr Thr Ser Leu Arg
20 25 30

Cys Arg Cys Val Gln Glu Ser Ser Val Phe Ile Pro Arg Arg Phe Ile
35 40 45

Asp Arg Ile Gln Ile Leu Pro Arg Gly Asn Gly Cys Pro Arg Lys Glu
50 55 60

Ile Ile Val Trp Lys Lys Asn Lys Ser Ile Val Cys Val Asp Pro Gln
65 70 75 80

Ala Glu Trp Ile Gln Arg Met Met Glu Val Leu Arg Lys Arg Ser Ser
85 90 95

Ser Thr Leu Pro Val Pro Val Phe Lys Arg Lys Ile Pro
100 105

<210> 241

<211> 109

<212> PRT

<213> Mus musculus

<400> 241

Met Arg Leu Ser Thr Ala Thr Leu Leu Leu Leu Leu Ala Ser Cys Leu
1 5 10 15

Ser Pro Gly His Gly Ile Leu Glu Ala His Tyr Thr Asn Leu Lys Cys
20 25 30

Arg Cys Ser Gly Val Ile Ser Thr Val Val Gly Leu Asn Ile Ile Asp
35 40 45

Arg Ile Gln Val Thr Pro Pro Gly Asn Gly Cys Pro Lys Thr Glu Val
50 55 60

Val Ile Trp Thr Lys Met Lys Lys Val Ile Cys Val Asn Pro Arg Ala
65 70 75 80

Lys Trp Leu Gln Arg Leu Leu Arg His Val Gln Ser Lys Ser Leu Ser
85 90 95

Ser Thr Pro Gln Ala Pro Val Ser Lys Arg Arg Ala Ala
100 105

<210> 242
<211> 97
<212> PRT
<213> Homo sapiens

<400> 242

Met Lys Val Ser Ala Ala Leu Leu Trp Leu Leu Leu Ile Ala Ala Ala
1 5 10 15

Phe Ser Pro Gln Gly Leu Ala Gly Pro Ala Ser Val Pro Thr Thr Cys
20 25 30

Cys Phe Asn Leu Ala Asn Arg Lys Ile Pro Leu Gln Arg Leu Glu Ser
35 40 45

Tyr Arg Arg Ile Thr Ser Gly Lys Cys Pro Gln Lys Ala Val Ile Phe
50 55 60

Lys Thr Lys Leu Ala Lys Asp Ile Cys Ala Asp Pro Lys Lys Lys Trp
65 70 75 80

Val Gln Asp Ser Met Lys Tyr Leu Asp Gln Lys Ser Pro Thr Pro Lys
85 90 95

Pro

<210> 243
<211> 119
<212> PRT
<213> Homo sapiens

<400> 243

Met Ala Gly Leu Met Thr Ile Val Thr Ser Leu Leu Phe Leu Gly Val
1 5 10 15

Cys Ala His His Ile Ile Pro Thr Gly Ser Val Val Ile Pro Ser Pro
20 25 30

Cys Cys Met Phe Phe Val Ser Lys Arg Ile Pro Glu Asn Arg Val Val
35 40 45

Ser Tyr Gln Leu Ser Ser Arg Ser Thr Cys Leu Lys Ala Gly Val Ile
50 55 60

Phe Thr Thr Lys Lys Gly Gln Gln Phe Cys Gly Asp Pro Lys Gln Glu
65 70 75 80

Trp Val Gln Arg Tyr Met Lys Asn Leu Asp Ala Lys Gln Lys Lys Ala
85 90 95

Ser Pro Arg Ala Arg Ala Val Ala Val Lys Gly Pro Val Gln Arg Tyr
100 105 110

Pro Gly Asn Gln Thr Thr Cys
115

<210> 244
<211> 94
<212> PRT
<213> Homo sapiens

<400> 244

Met Met Gly Leu Ser Leu Ala Ser Ala Val Leu Leu Ala Ser Leu Leu
1 5 10 15

Ser Leu His Leu Gly Thr Ala Thr Arg Gly Ser Asp Ile Ser Lys Thr
20 25 30

Cys Cys Phe Gln Tyr Ser His Lys Pro Leu Pro Trp Thr Trp Val Arg
35 40 45

Ser Tyr Glu Phe Thr Ser Asn Ser Cys Ser Gln Arg Ala Val Ile Phe
50 55 60

Thr Thr Lys Arg Gly Lys Lys Val Cys Thr His Pro Arg Lys Lys Trp
65 70 75 80

Val Gln Lys Tyr Ile Ser Leu Leu Lys Thr Pro Lys Gln Leu
85 90

<210> 245
<211> 97
<212> PRT
<213> Mus musculus

<400> 245

Met Gln Ser Ser Thr Ala Leu Leu Phe Leu Leu Leu Thr Val Thr Ser
1 5 10 15

Phe Thr Ser Gln Val Leu Ala His Pro Gly Ser Ile Pro Thr Ser Cys

20

25

30

Cys Phe Ile Met Thr Ser Lys Lys Ile Pro Asn Thr Leu Leu Lys Ser
35 40 45

Tyr Lys Arg Ile Thr Asn Asn Arg Cys Thr Leu Lys Ala Ile Val Phe
50 55 60

Lys Thr Arg Leu Gly Lys Glu Ile Cys Ala Asp Pro Lys Lys Lys Trp
65 70 75 80

Val Gln Asp Ala Thr Lys His Leu Asp Gln Lys Leu Gln Thr Pro Lys
85 90 95

Pro

<210> 246
<211> 119
<212> PRT
<213> Mus musculus

<400> 246

Met Ala Gly Ser Ala Thr Ile Val Ala Gly Leu Leu Leu Leu Val Ala
1 5 10 15

Cys Ala Cys Cys Ile Phe Pro Ile Asp Ser Val Thr Ile Pro Ser Ser
20 25 30

Cys Cys Thr Ser Phe Ile Ser Lys Lys Ile Pro Glu Asn Arg Val Val
35 40 45

Ser Tyr Gln Leu Ala Asn Gly Ser Ile Cys Pro Lys Ala Gly Val Ile
50 55 60

Phe Ile Thr Lys Lys Gly His Lys Ile Cys Thr Asp Pro Lys Leu Leu
65 70 75 80

Trp Val Gln Arg His Ile Gln Lys Leu Asp Ala Lys Lys Asn Gln Pro
85 90 95

Ser Lys Gly Ala Lys Ala Val Arg Thr Lys Phe Ala Val Gln Arg Arg
100 105 110

Arg Gly Asn Ser Thr Glu Val
115

<210> 247
<211> 553
<212> PRT
<213> Homo sapiens

<400> 247

Met Thr Ala Pro Gly Ala Ala Gly Arg Cys Pro Pro Thr Thr Trp Leu
1 5 10 15

Gly Ser Leu Leu Leu Leu Val Cys Leu Leu Ala Ser Arg Ser Ile Thr
20 25 30

Glu Glu Val Ser Glu Tyr Cys Ser His Met Ile Gly Ser Gly His Leu
35 40 45

Gln Ser Leu Gln Arg Leu Ile Asp Ser Gln Met Glu Thr Ser Cys Gln
50 55 60

Ile Thr Phe Glu Phe Val Asp Gln Glu Gln Leu Lys Asp Pro Val Cys
65 70 75 80

Tyr Leu Lys Lys Ala Phe Leu Leu Val Gln Asp Ile Met Glu Asp Thr
85 90 95

Met Arg Phe Arg Asp Asn Thr Pro Asn Ala Ile Ala Ile Val Gln Leu
100 105 110

Gln Glu Leu Ser Leu Arg Leu Lys Ser Cys Phe Thr Lys Asp Tyr Glu
115 120 125

Glu His Asp Lys Ala Cys Val Arg Thr Phe Tyr Glu Thr Pro Leu Gln
130 135 140

Leu Leu Glu Lys Val Lys Asn Val Phe Asn Glu Thr Lys Asn Leu Leu
145 150 155 160

Asp Lys Asp Trp Asn Ile Phe Ser Lys Asn Cys Asn Asn Ser Phe Ala
165 170 175

Glu Cys Ser Ser Gln Asp Val Val Thr Lys Pro Asp Cys Asn Cys Leu
180 185 190

Tyr Pro Lys Ala Ile Pro Ser Ser Asp Pro Ala Ser Val Ser Pro His
195 200 205

Gln Pro Leu Ala Pro Ser Met Ala Pro Val Ala Gly Leu Thr Trp Glu

| | | | | |
|---|-----|-----|-----|---------|
| 210 | | 215 | | 220 |
| Asp Ser Glu Gly Thr Glu Gly Ser Ser Leu Leu Pro Gly Glu Gln Pro | | | | |
| 225 | | 230 | | 235 240 |
| Leu His Thr Val Asp Pro Gly Ser Ala Lys Gln Arg Pro Pro Arg Ser | | | | |
| | 245 | | 250 | 255 |
| Thr Cys Gln Ser Phe Glu Pro Pro Glu Thr Pro Val Val Lys Asp Ser | | | | |
| | 260 | | 265 | 270 |
| Thr Ile Gly Gly Ser Pro Gln Pro Arg Pro Ser Val Gly Ala Phe Asn | | | | |
| | 275 | | 280 | 285 |
| Pro Gly Met Glu Asp Ile Leu Asp Ser Ala Met Gly Thr Asn Trp Val | | | | |
| | 290 | | 295 | 300 |
| Pro Glu Glu Ala Ser Gly Glu Ala Ser Glu Ile Pro Val Pro Gln Gly | | | | |
| 305 | | 310 | | 315 320 |
| Thr Glu Leu Ser Pro Ser Arg Pro Gly Gly Gly Ser Met Gln Thr Glu | | | | |
| | 325 | | 330 | 335 |
| Pro Ala Arg Pro Ser Asn Phe Leu Ser Ala Ser Ser Pro Leu Pro Ala | | | | |
| | 340 | | 345 | 350 |
| Ser Ala Lys Gly Gln Gln Pro Ala Asp Val Thr Gly Thr Ala Leu Pro | | | | |
| | 355 | | 360 | 365 |
| Arg Val Gly Pro Val Arg Pro Thr Gly Gln Asp Trp Asn His Thr Pro | | | | |
| | 370 | | 375 | 380 |
| Gln Lys Thr Asp His Pro Ser Ala Leu Leu Arg Asp Pro Pro Glu Pro | | | | |
| 385 | | 390 | | 395 400 |
| Gly Ser Pro Arg Ile Ser Ser Pro Arg Pro Gln Gly Leu Ser Asn Pro | | | | |
| | 405 | | 410 | 415 |
| Ser Thr Leu Ser Ala Gln Pro Gln Leu Ser Arg Ser His Ser Ser Gly | | | | |
| | 420 | | 425 | 430 |
| Ser Val Leu Pro Leu Gly Glu Leu Glu Gly Arg Arg Ser Thr Arg Asp | | | | |
| | 435 | | 440 | 445 |
| Arg Arg Ser Pro Ala Glu Pro Glu Gly Gly Pro Ala Ser Glu Gly Ala | | | | |
| | 450 | | 455 | 460 |

Ala Arg Pro Leu Pro Arg Phe Asn Ser Val Pro Leu Thr Asp Thr His
465 470 475 480

Glu Arg Gln Ser Glu Gly Ser Ser Ser Pro Gln Leu Gln Glu Ser Val
485 490 495

Phe His Leu Leu Val Pro Ser Val Ile Leu Val Leu Leu Ala Val Gly
500 505 510

Gly Leu Leu Phe Tyr Arg Trp Arg Arg Arg Ser His Gln Glu Pro Gln
515 520 525

Arg Ala Asp Ser Pro Leu Glu Gln Pro Glu Gly Ser Pro Leu Thr Gln
530 535 540

Asp Asp Arg Gln Val Glu Leu Pro Val
545 550

<210> 248
<211> 552
<212> PRT
<213> Mus musculus

<400> 248

Met Thr Ala Arg Gly Ala Ala Gly Arg Cys Pro Ser Ser Thr Trp Leu
1 5 10 15

Gly Ser Arg Leu Leu Leu Val Cys Leu Leu Met Ser Arg Ser Ile Ala
20 25 30

Lys Glu Val Ser Glu His Cys Ser His Met Ile Gly Asn Gly His Leu
35 40 45

Lys Val Leu Gln Gln Leu Ile Asp Ser Gln Met Glu Thr Ser Cys Gln
50 55 60

Ile Ala Phe Glu Phe Val Asp Gln Glu Gln Leu Asp Asp Pro Val Cys
65 70 75 80

Tyr Leu Lys Lys Ala Phe Phe Leu Val Gln Asp Ile Ile Asp Glu Thr
85 90 95

Met Arg Phe Lys Asp Asn Thr Pro Asn Ala Asn Ala Thr Glu Arg Leu
100 105 110

Gln Glu Leu Ser Asn Asn Leu Asn Ser Cys Phe Thr Lys Asp Tyr Glu
115 120 125

Glu Gln Asn Lys Ala Cys Val Arg Thr Phe His Glu Thr Pro Leu Gln
130 135 140

Leu Leu Glu Lys Ile Lys Asn Phe Phe Asn Glu Thr Lys Asn Leu Leu
145 150 155 160

Glu Lys Asp Trp Asn Ile Phe Thr Lys Asn Cys Asn Asn Ser Phe Ala
165 170 175

Lys Cys Ser Ser Arg Asp Val Val Thr Lys Pro Asp Cys Asn Cys Leu
180 185 190

Tyr Pro Lys Ala Thr Pro Ser Ser Asp Pro Ala Ser Ala Ser Pro His
195 200 205

Gln Pro Pro Ala Pro Ser Met Ala Pro Leu Ala Gly Leu Ala Trp Asp
210 215 220

Asp Ser Gln Arg Thr Glu Gly Ser Ser Leu Leu Pro Ser Glu Leu Pro
225 230 235 240

Leu Arg Ile Glu Asp Pro Gly Ser Ala Lys Gln Arg Pro Pro Arg Ser
245 250 255

Thr Cys Gln Thr Leu Glu Ser Thr Glu Gln Pro Asn His Gly Asp Arg
260 265 270

Leu Thr Glu Asp Ser Gln Pro His Pro Ser Ala Gly Gly Pro Val Pro
275 280 285

Gly Val Glu Asp Ile Leu Glu Ser Ser Leu Gly Thr Asn Trp Val Leu
290 295 300

Glu Glu Ala Ser Gly Glu Ala Ser Glu Gly Phe Leu Thr Gln Glu Ala
305 310 315 320

Lys Phe Ser Pro Ser Thr Pro Val Gly Gly Ser Ile Gln Ala Glu Thr
325 330 335

Asp Arg Pro Arg Ala Leu Ser Ala Ser Pro Phe Pro Lys Ser Thr Glu
340 345 350

Asp Gln Lys Pro Val Asp Ile Thr Asp Arg Pro Leu Thr Glu Val Asn

| | | | | |
|---|--|-----|--|-----|
| 355 | | 360 | | 365 |
| Pro Met Arg Pro Ile Gly Gln Thr Gln Asn Asn Thr Pro Glu Lys Thr | | | | |
| 370 | | 375 | | 380 |
| Asp Gly Thr Ser Thr Leu Arg Glu Asp His Gln Glu Pro Gly Ser Pro | | | | |
| 385 | | 390 | | 395 |
| | | | | 400 |
| His Ile Ala Thr Pro Asn Pro Gln Arg Val Ser Asn Ser Ala Thr Pro | | | | |
| | | 405 | | 410 |
| | | | | 415 |
| Val Ala Gln Leu Leu Leu Pro Lys Ser His Ser Trp Gly Ile Val Leu | | | | |
| | | 420 | | 425 |
| | | | | 430 |
| Pro Leu Gly Glu Leu Glu Gly Lys Arg Ser Thr Arg Asp Arg Arg Ser | | | | |
| | | 435 | | 440 |
| | | | | 445 |
| Pro Ala Glu Leu Glu Gly Gly Ser Ala Ser Glu Gly Ala Ala Arg Pro | | | | |
| | | 450 | | 455 |
| | | | | 460 |
| Val Ala Arg Phe Asn Ser Ile Pro Leu Thr Asp Thr Gly His Val Glu | | | | |
| 465 | | 470 | | 475 |
| | | | | 480 |
| Gln His Glu Gly Ser Ser Asp Pro Gln Ile Pro Glu Ser Val Phe His | | | | |
| | | 485 | | 490 |
| | | | | 495 |
| Leu Leu Val Pro Gly Ile Ile Leu Val Leu Leu Thr Val Gly Gly Leu | | | | |
| | | 500 | | 505 |
| | | | | 510 |
| Leu Phe Tyr Lys Trp Lys Trp Arg Ser His Arg Asp Pro Gln Thr Leu | | | | |
| | | 515 | | 520 |
| | | | | 525 |
| Asp Ser Ser Val Gly Arg Pro Glu Asp Ser Ser Leu Thr Gln Asp Glu | | | | |
| | | 530 | | 535 |
| | | | | 540 |
| Asp Arg Gln Val Glu Leu Pro Val | | | | |
| 545 | | 550 | | |
| <210> 249 | | | | |
| <211> 108 | | | | |
| <212> PRT | | | | |
| <213> Homo sapiens | | | | |
| <400> 249 | | | | |
| Met Lys Ala Leu Cys Leu Leu Leu Leu Pro Val Leu Gly Leu Leu Val | | | | |
| 1 | | 5 | | 10 |
| | | | | 15 |

Ser Ser Lys Thr Leu Cys Ser Met Glu Glu Ala Ile Asn Glu Arg Ile
20 25 30

Gln Glu Val Ala Gly Ser Leu Ile Phe Arg Ala Ile Ser Ser Ile Gly
35 40 45

Leu Glu Cys Gln Ser Val Thr Ser Arg Gly Asp Leu Ala Thr Cys Pro
50 55 60

Arg Gly Phe Ala Val Thr Gly Cys Thr Cys Gly Ser Ala Cys Gly Ser
65 70 75 80

Trp Asp Val Arg Ala Glu Thr Thr Cys His Cys Gln Cys Ala Gly Met
85 90 95

Asp Trp Thr Gly Ala Arg Cys Cys Arg Val Gln Pro
100 105

<210> 250

<211> 114

<212> PRT

<213> Mus musculus

<400> 250

Met Lys Asn Leu Ser Phe Pro Leu Leu Phe Leu Phe Phe Leu Val Pro
1 5 10 15

Glu Leu Leu Gly Ser Ser Met Pro Leu Cys Pro Ile Asp Glu Ala Ile
20 25 30

Asp Lys Lys Ile Lys Gln Asp Phe Asn Ser Leu Phe Pro Asn Ala Ile
35 40 45

Lys Asn Ile Gly Leu Asn Cys Trp Thr Val Ser Ser Arg Gly Lys Leu
50 55 60

Ala Ser Cys Pro Glu Gly Thr Ala Val Leu Ser Cys Ser Cys Gly Ser
65 70 75 80

Ala Cys Gly Ser Trp Asp Ile Arg Glu Glu Lys Val Cys His Cys Gln
85 90 95

Cys Ala Arg Ile Asp Trp Thr Ala Ala Arg Cys Cys Lys Leu Gln Val
100 105 110

Ala Ser

<210> 251
<211> 174
<212> PRT
<213> Homo sapiens

<400> 251

Gln Asp Gln Gly Gly Leu Val Thr Glu Thr Ala Asp Pro Gly Ala Gln
1 5 10 15

Ala Gln Gln Gly Leu Gly Phe Gln Lys Leu Pro Glu Glu Glu Pro Glu
20 25 30

Thr Asp Leu Ser Pro Gly Leu Pro Ala Ala His Leu Ile Gly Ala Pro
35 40 45

Leu Lys Gly Gln Gly Leu Gly Trp Glu Thr Thr Lys Glu Gln Ala Phe
50 55 60

Leu Thr Ser Gly Thr Gln Phe Ser Asp Ala Glu Gly Leu Ala Leu Pro
65 70 75 80

Gln Asp Gly Leu Tyr Tyr Leu Tyr Cys Leu Val Gly Tyr Arg Gly Arg
85 90 95

Ala Pro Pro Gly Gly Gly Asp Pro Gln Gly Arg Ser Val Thr Leu Arg
100 105 110

Ser Ser Leu Tyr Arg Ala Gly Gly Ala Tyr Gly Pro Gly Thr Pro Glu
115 120 125

Leu Leu Leu Glu Gly Ala Glu Thr Val Thr Pro Val Leu Asp Pro Ala
130 135 140

Arg Arg Gln Gly Tyr Gly Pro Leu Trp Tyr Thr Ser Val Gly Phe Gly
145 150 155 160

Gly Leu Val Gln Leu Arg Arg Gly Glu Arg Val Tyr Val Asn
165 170

<210> 252
<211> 258
<212> PRT
<213> Mus musculus

<400> 252

Gln Asp Gln Gly Arg Arg Val Glu Lys Ile Ile Gly Ser Gly Ala Gln

| | | | |
|---|-----|-----|-----|
| 1 | 5 | 10 | 15 |
| Ala Gln Lys Arg Leu Asp Asp Ser Lys Pro Ser Cys Ile Leu Pro Ser | 20 | 25 | 30 |
| Pro Ser Ser Leu Ser Glu Thr Pro Asp Pro Arg Leu His Pro Gln Arg | 35 | 40 | 45 |
| Ser Asn Ala Ser Arg Asn Leu Ala Ser Thr Ser Gln Gly Pro Val Ala | 50 | 55 | 60 |
| Gln Ser Ser Arg Glu Ala Ser Ala Trp Met Thr Ile Leu Ser Pro Ala | 65 | 70 | 80 |
| Ala Asp Ser Thr Pro Asp Pro Gly Val Gln Gln Leu Pro Lys Gly Glu | 85 | 90 | 95 |
| Pro Glu Thr Asp Leu Asn Pro Glu Leu Pro Ala Ala His Leu Ile Gly | 100 | 105 | 110 |
| Ala Trp Met Ser Gly Gln Gly Leu Ser Trp Glu Ala Ser Gln Glu Glu | 115 | 120 | 125 |
| Ala Phe Leu Arg Ser Gly Ala Gln Phe Ser Pro Thr His Gly Leu Ala | 130 | 135 | 140 |
| Leu Pro Gln Asp Gly Val Tyr Tyr Leu Tyr Cys His Val Gly Tyr Arg | 145 | 150 | 160 |
| Gly Arg Thr Pro Pro Ala Gly Arg Ser Arg Ala Arg Ser Leu Thr Leu | 165 | 170 | 175 |
| Arg Ser Ala Leu Tyr Arg Ala Gly Gly Ala Tyr Gly Arg Gly Ser Pro | 180 | 185 | 190 |
| Glu Leu Leu Leu Glu Gly Ala Glu Thr Val Thr Pro Val Val Asp Pro | 195 | 200 | 205 |
| Ile Gly Tyr Gly Ser Leu Trp Tyr Thr Ser Val Gly Phe Gly Gly Leu | 210 | 215 | 220 |
| Ala Gln Leu Arg Ser Gly Glu Arg Val Tyr Val Asn Ile Ser His Pro | 225 | 230 | 240 |
| Asp Met Val Asp Tyr Arg Arg Gly Lys Thr Phe Phe Gly Ala Val Met | 245 | 250 | 255 |

Val Gly

<210> 253
<211> 128
<212> PRT
<213> RNA-phage PP7

<400> 253

Met Ser Lys Thr Ile Val Leu Ser Val Gly Glu Ala Thr Arg Thr Leu
1 5 10 15

Thr Glu Ile Gln Ser Thr Ala Asp Arg Gln Ile Phe Glu Glu Lys Val
20 25 30

Gly Pro Leu Val Gly Arg Leu Arg Leu Thr Ala Ser Leu Arg Gln Asn
35 40 45

Gly Ala Lys Thr Ala Tyr Arg Val Asn Leu Lys Leu Asp Gln Ala Asp
50 55 60

Val Val Asp Cys Ser Thr Ser Val Cys Gly Glu Leu Pro Lys Val Arg
65 70 75 80

Tyr Thr Gln Val Trp Ser His Asp Val Thr Ile Val Ala Asn Ser Thr
85 90 95

Glu Ala Ser Arg Lys Ser Leu Tyr Asp Leu Thr Lys Ser Leu Val Ala
100 105 110

Thr Ser Gln Val Glu Asp Leu Val Val Asn Leu Val Pro Leu Gly Arg
115 120 125

<210> 254
<211> 330
<212> PRT
<213> RNA-phage SP A1 protein

<400> 254

Ala Lys Leu Asn Gln Val Thr Leu Ser Lys Ile Gly Lys Asn Gly Asp
1 5 10 15

Gln Thr Leu Thr Leu Thr Pro Arg Gly Val Asn Pro Thr Asn Gly Val
20 25 30

Ala Ser Leu Ser Glu Ala Gly Ala Val Pro Ala Leu Glu Lys Arg Val

| | | | | |
|---|-----|-----|-----|-----|
| 35 | | 40 | | 45 |
| Thr Val Ser Val Ala Gln Pro Ser Arg Asn Arg Lys Asn Phe Lys Val | | | | |
| 50 | | 55 | | 60 |
| Gln Ile Lys Leu Gln Asn Pro Thr Ala Cys Thr Arg Asp Ala Cys Asp | | | | |
| 65 | | 70 | | 75 |
| Pro Ser Val Thr Arg Ser Ala Phe Ala Asp Val Thr Leu Ser Phe Thr | | | | |
| | 85 | | 90 | 95 |
| Ser Tyr Ser Thr Asp Glu Glu Arg Ala Leu Ile Arg Thr Glu Leu Ala | | | | |
| | 100 | | 105 | 110 |
| Ala Leu Leu Ala Asp Pro Leu Ile Val Asp Ala Ile Asp Asn Leu Asn | | | | |
| | 115 | | 120 | 125 |
| Pro Ala Tyr Trp Ala Ala Leu Leu Val Ala Ser Ser Gly Gly Gly Asp | | | | |
| | 130 | | 135 | 140 |
| Asn Pro Ser Asp Pro Asp Val Pro Val Val Pro Asp Val Lys Pro Pro | | | | |
| 145 | | 150 | | 155 |
| Asp Gly Thr Gly Arg Tyr Lys Cys Pro Phe Ala Cys Tyr Arg Leu Gly | | | | |
| | 165 | | 170 | 175 |
| Ser Ile Tyr Glu Val Gly Lys Glu Gly Ser Pro Asp Ile Tyr Glu Arg | | | | |
| | 180 | | 185 | 190 |
| Gly Asp Glu Val Ser Val Thr Phe Asp Tyr Ala Leu Glu Asp Phe Leu | | | | |
| | 195 | | 200 | 205 |
| Gly Asn Thr Asn Trp Arg Asn Trp Asp Gln Arg Leu Ser Asp Tyr Asp | | | | |
| | 210 | | 215 | 220 |
| Ile Ala Asn Arg Arg Arg Cys Arg Gly Asn Gly Tyr Ile Asp Leu Asp | | | | |
| 225 | | 230 | | 235 |
| Ala Thr Ala Met Gln Ser Asp Asp Phe Val Leu Ser Gly Arg Tyr Gly | | | | |
| | 245 | | 250 | 255 |
| Val Arg Lys Val Lys Phe Pro Gly Ala Phe Gly Ser Ile Lys Tyr Leu | | | | |
| | 260 | | 265 | 270 |
| Leu Asn Ile Gln Gly Asp Ala Trp Leu Asp Leu Ser Glu Val Thr Ala | | | | |
| | 275 | | 280 | 285 |

Tyr Arg Ser Tyr Gly Met Val Ile Gly Phe Trp Thr Asp Ser Lys Ser
290 295 300

Pro Gln Leu Pro Thr Asp Phe Thr Gln Phe Asn Ser Ala Asn Cys Pro
305 310 315 320

Val Gln Thr Val Ile Ile Ile Pro Ser Leu
325 330

<210> 255
<211> 132
<212> PRT
<213> QB 240

<400> 255

Ala Lys Leu Glu Thr Val Thr Leu Gly Asn Ile Gly Arg Asp Gly Lys
1 5 10 15

Gln Thr Leu Val Leu Asn Pro Arg Gly Val Asn Pro Thr Asn Gly Val
20 25 30

Ala Ser Leu Ser Gln Ala Gly Ala Val Pro Ala Leu Glu Lys Arg Val
35 40 45

Thr Val Ser Val Ser Gln Pro Ser Arg Asn Arg Lys Asn Tyr Lys Val
50 55 60

Gln Val Lys Ile Gln Asn Pro Thr Ala Cys Thr Ala Asn Gly Ser Cys
65 70 75 80

Asp Pro Ser Val Thr Arg Gln Lys Tyr Ala Asp Val Thr Phe Ser Phe
85 90 95

Thr Gln Tyr Ser Thr Asp Glu Glu Arg Ala Phe Val Arg Thr Glu Leu
100 105 110

Ala Ala Leu Leu Ala Ser Pro Leu Leu Ile Asp Ala Ile Asp Gln Leu
115 120 125

Asn Pro Ala Tyr
130

<210> 256
<211> 132
<212> PRT
<213> Qb 243

<400> 256

Ala Lys Leu Glu Thr Val Thr Leu Gly Lys Ile Gly Lys Asp Gly Lys
1 5 10 15

Gln Thr Leu Val Leu Asn Pro Arg Gly Val Asn Pro Thr Asn Gly Val
20 25 30

Ala Ser Leu Ser Gln Ala Gly Ala Val Pro Ala Leu Glu Lys Arg Val
35 40 45

Thr Val Ser Val Ser Gln Pro Ser Arg Asn Arg Lys Asn Tyr Lys Val
50 55 60

Gln Val Lys Ile Gln Asn Pro Thr Ala Cys Thr Ala Asn Gly Ser Cys
65 70 75 80

Asp Pro Ser Val Thr Arg Gln Lys Tyr Ala Asp Val Thr Phe Ser Phe
85 90 95

Thr Gln Tyr Ser Thr Asp Glu Glu Arg Ala Phe Val Arg Thr Glu Leu
100 105 110

Ala Ala Leu Leu Ala Ser Pro Leu Leu Ile Asp Ala Ile Asp Gln Leu
115 120 125

Asn Pro Ala Tyr
130

<210> 257

<211> 132

<212> PRT

<213> Qb 250

<400> 257

Ala Arg Leu Glu Thr Val Thr Leu Gly Asn Ile Gly Arg Asp Gly Lys
1 5 10 15

Gln Thr Leu Val Leu Asn Pro Arg Gly Val Asn Pro Thr Asn Gly Val
20 25 30

Ala Ser Leu Ser Gln Ala Gly Ala Val Pro Ala Leu Glu Lys Arg Val
35 40 45

Thr Val Ser Val Ser Gln Pro Ser Arg Asn Arg Lys Asn Tyr Lys Val
50 55 60

Gln Val Lys Ile Gln Asn Pro Thr Ala Cys Thr Ala Asn Gly Ser Cys
65 70 75 80

Asp Pro Ser Val Thr Arg Gln Lys Tyr Ala Asp Val Thr Phe Ser Phe
85 90 95

Thr Gln Tyr Ser Thr Asp Glu Glu Arg Ala Phe Val Arg Thr Glu Leu
100 105 110

Ala Ala Leu Leu Ala Ser Pro Leu Leu Ile Asp Ala Ile Asp Gln Leu
115 120 125

Asn Pro Ala Tyr
130

<210> 258
<211> 132
<212> PRT
<213> Qb 259

<400> 258

Ala Arg Leu Glu Thr Val Thr Leu Gly Asn Ile Gly Lys Asp Gly Arg
1 5 10 15

Gln Thr Leu Val Leu Asn Pro Arg Gly Val Asn Pro Thr Asn Gly Val
20 25 30

Ala Ser Leu Ser Gln Ala Gly Ala Val Pro Ala Leu Glu Lys Arg Val
35 40 45

Thr Val Ser Val Ser Gln Pro Ser Arg Asn Arg Lys Asn Tyr Lys Val
50 55 60

Gln Val Lys Ile Gln Asn Pro Thr Ala Cys Thr Ala Asn Gly Ser Cys
65 70 75 80

Asp Pro Ser Val Thr Arg Gln Lys Tyr Ala Asp Val Thr Phe Ser Phe
85 90 95

Thr Gln Tyr Ser Thr Asp Glu Glu Arg Ala Phe Val Arg Thr Glu Leu
100 105 110

Ala Ala Leu Leu Ala Ser Pro Leu Leu Ile Asp Ala Ile Asp Gln Leu
115 120 125

Asn Pro Ala Tyr

130

<210> 259
<211> 132
<212> PRT
<213> Qb 251

<400> 259

Ala Lys Leu Glu Thr Val Thr Leu Gly Asn Ile Gly Lys Asp Gly Arg
1 5 10 15

Gln Thr Leu Val Leu Asn Pro Arg Gly Val Asn Pro Thr Asn Gly Val
20 25 30

Ala Ser Leu Ser Gln Ala Gly Ala Val Pro Ala Leu Glu Lys Arg Val
35 40 45

Thr Val Ser Val Ser Gln Pro Ser Arg Asn Arg Lys Asn Tyr Lys Val
50 55 60

Gln Val Lys Ile Gln Asn Pro Thr Ala Cys Thr Ala Asn Gly Ser Cys
65 70 75 80

Asp Pro Ser Val Thr Arg Gln Lys Tyr Ala Asp Val Thr Phe Ser Phe
85 90 95

Thr Gln Tyr Ser Thr Asp Glu Glu Arg Ala Phe Val Arg Thr Glu Leu
100 105 110

Ala Ala Leu Leu Ala Ser Pro Leu Leu Ile Asp Ala Ile Asp Gln Leu
115 120 125

Asn Pro Ala Tyr
130

<210> 260
<211> 20
<212> DNA
<213> PH19

<400> 260
taagtcctct gccacgtacc

20

<210> 261
<211> 20
<212> DNA
<213> PH20

<400> 261

tggaaccac gctcacttcc 20

<210> 262
<211> 30
<212> DNA
<213> PH21

<400> 262
cgggatccgg gatgaagaac ctttcatttc 30

<210> 263
<211> 31
<212> DNA
<213> PH22

<400> 263
gcctctagag aggaagcgac ctgcagctta c 31

<210> 264
<211> 46
<212> DNA
<213> PH29

<400> 264
ctagcgggag ggggtggatg tggggacgac tacaaggatg acgaca 46

<210> 265
<211> 46
<212> DNA
<213> PH30

<400> 265
agcttgcgt catccttgta gtcgtcccca catccacccc ctccccg 46

<210> 266
<211> 45
<212> DNA
<213> PH31

<400> 266
agcttactca cacatgcca ccgtgcccag cacctgaagc cgagg 45

<210> 267
<211> 38
<212> DNA
<213> PH32

<400> 267
cggcttcagg tgctgggcac ggtgggcatg tgtgagta 38

<210> 268
<211> 37
<212> DNA
<213> PH35

<400> 268
ctagcgggag ggggtggatg tgggatcgaa ggtcgca 37

<210> 269
<211> 37
<212> DNA
<213> PH36

<400> 269
agcttgcgac cttcgatccc acatccaccc cctcccg 37

<210> 270
<211> 43
<212> DNA
<213> PH37

<400> 270
cgggatccag cagctgggct cgaggcgta gctttgttta aac 43

<210> 271
<211> 55
<212> DNA
<213> PH38

<400> 271
gatcgtttaa acaaaciaag ctacacctc gagcccagct gctggatccc ggtac 55

<210> 272
<211> 37
<212> DNA
<213> PH39

<400> 272
ctagcgggag ggggtggatg tggggacgat gacgaca 37

<210> 273
<211> 37
<212> DNA
<213> PH40

<400> 273
agcttgtcgt catcgcccc acatccaccc cctcccg 37

<210> 274
<211> 30
<212> DNA
<213> PH41

<400> 274
catggagaca gacacactcc tgctatgggt 30

<210> 275
<211> 39

<212> DNA
<213> PH42

<400> 275
gcagtaccca tagcaggagt gtgtctgtct ccatggtac 39

<210> 276
<211> 37
<212> DNA
<213> PH43

<400> 276
actgctgctc tgggttccag gttccactgg tgacgcg 37

<210> 277
<211> 36
<212> DNA
<213> PH44

<400> 277
gatccgcgtc accagtggaa cctggaaccc agagca 36

<210> 278
<211> 40
<212> DNA
<213> SU7

<400> 278
agcttgcgga tccaggatat cggctcgagg ttctagagtg 40

<210> 279
<211> 40
<212> DNA
<213> SU8

<400> 279
ggcccactct agaacctcga gccgatatcc tggatccgca 40

<210> 280
<211> 107
<212> PRT
<213> Artificial Sequence

<220>
<223> Resistin-C-Xa construct

<400> 280

Ser Ser Met Pro Leu Cys Pro Ile Asp Glu Ala Ile Asp Lys Lys Ile
1 5 10 15

Lys Gln Asp Phe Asn Ser Leu Phe Pro Asn Ala Ile Lys Asn Ile Gly
20 25 30

Leu Asn Cys Trp Thr Val Ser Ser Arg Gly Lys Leu Ala Ser Cys Pro
35 40 45

Glu Gly Thr Ala Val Leu Ser Cys Ser Cys Gly Ser Ala Cys Gly Ser
50 55 60

Trp Asp Ile Arg Glu Glu Lys Val Cys His Cys Gln Cys Ala Arg Ile
65 70 75 80

Asp Trp Thr Ala Ala Arg Cys Cys Lys Leu Gln Val Ala Ser Ser Leu
85 90 95

Ala Gly Gly Gly Gly Cys Gly Ile Glu Gly Arg
100 105

<210> 281
<211> 107
<212> PRT
<213> Artificial Sequence

<220>
<223> Resistin-C-EK construct

<400> 281

Ser Ser Met Pro Leu Cys Pro Ile Asp Glu Ala Ile Asp Lys Lys Ile
1 5 10 15

Lys Gln Asp Phe Asn Ser Leu Phe Pro Asn Ala Ile Lys Asn Ile Gly
20 25 30

Leu Asn Cys Trp Thr Val Ser Ser Arg Gly Lys Leu Ala Ser Cys Pro
35 40 45

Glu Gly Thr Ala Val Leu Ser Cys Ser Cys Gly Ser Ala Cys Gly Ser
50 55 60

Trp Asp Ile Arg Glu Glu Lys Val Cys His Cys Gln Cys Ala Arg Ile
65 70 75 80

Asp Trp Thr Ala Ala Arg Cys Cys Lys Leu Gln Val Ala Ser Ser Leu
85 90 95

Ala Gly Gly Gly Gly Cys Gly Asp Asp Asp Asp
100 105

<210> 282
<211> 103
<212> PRT

<213> Artificial Sequence

<220>

<223> Resistin-GCG construct

<400> 282

Ser Ser Met Pro Leu Cys Pro Ile Asp Glu Ala Ile Asp Lys Lys Ile
1 5 10 15

Lys Gln Asp Phe Asn Ser Leu Phe Pro Asn Ala Ile Lys Asn Ile Gly
20 25 30

Leu Asn Cys Trp Thr Val Ser Ser Arg Gly Lys Leu Ala Ser Cys Pro
35 40 45

Glu Gly Thr Ala Val Leu Ser Cys Ser Cys Gly Ser Ala Cys Gly Ser
50 55 60

Trp Asp Ile Arg Glu Glu Lys Val Cys His Cys Gln Cys Ala Arg Ile
65 70 75 80

Asp Trp Thr Ala Ala Arg Cys Cys Lys Leu Gln Val Ala Ser Ser Leu
85 90 95

Ala Gly Gly Gly Gly Cys Gly
100

<210> 283

<211> 10285

<212> DNA

<213> Artificial Sequence

<220>

<223> pCep Xa Fc construct

<220>

<221> misc_feature

<222> (9872)..(9872)

<223> n is a, c, g, or t

<400> 283

gccccgccgc cggacgaact aaacctgact acggcatctc tgccccttct tcgctggtac 60
gaggagcgct tttgttttgt attcggggca gtgcatgtaa tcccttcagt tggttggtac 120
aacttgccaa ctgggccctg ttccacatgt gacacggggg gggaccaaac acaaaggggt 180
tctctgactg tagttgacat cttataaat ggatgtgcac atttgccaac actgagtggc 240
tttcatcctg gagcagactt tgcattgctgt ggactgcaac acaacattgc ctttatgtgt 300
aactcttggc tgaagctctt acaccaatgc tgggggacat gtacctcca gggggccagg 360

| | | | | | | |
|------------|-------------|-------------|-------------|-------------|-------------|------|
| aagactacgg | gaggctacac | caacgtcaat | cagagggggcc | tgtgtagcta | ccgataagcg | 420 |
| gaccctcaag | agggcattag | caatagtgtt | tataaggccc | ccttggttaac | cctaaacggg | 480 |
| tagcatatgc | ttccccggta | gtagtatata | ctatccagac | taaccctaata | tcaatagcat | 540 |
| atgttaccce | acgggaagca | tatgctatcg | aattaggggt | agtaaaagg | tcctaaggaa | 600 |
| cagcgatata | tcccacccca | tgagctgtca | cggtttttatt | tacatgggggt | caggattcca | 660 |
| cgagggtagt | gaaccatttt | agtcacaagg | gcagtggctg | aagatcaagg | agcgggcagt | 720 |
| gaactctcct | gaatcttcgc | ctgcttcttc | attctccttc | gtttagctaa | tagaataact | 780 |
| gctgagttgt | gaacagtaag | gtgtatgtga | gggtgctcgaa | aacaagggtt | cagggtgacgc | 840 |
| ccccagaata | aaatttggac | gggggggttca | gtggtggcat | tgtgctatga | caccaatata | 900 |
| accctcacia | acccttggg | caataaatac | tagtgtagga | atgaaacatt | ctgaatatct | 960 |
| ttacaataag | aaatccatgg | gggtggggaca | agccgtaaaag | actggatgtc | catctcacac | 1020 |
| gaatttatgg | ctatgggcaa | cacataatcc | tagtgcaata | tgatactggg | gttattaaga | 1080 |
| tgtgtcccag | gcagggaacca | agacaggtga | accatgttgt | tacactctat | ttgtaacaag | 1140 |
| gggaaagaga | gtggacgccg | acagcagcgg | actccactgg | ttgtctctaa | cacccccgaa | 1200 |
| aattaaacgg | ggctccacgc | caatggggcc | cataaacaaa | gacaagtggc | cactcttttt | 1260 |
| tttgaaattg | tggagtgggg | gcacgcgtca | gccccacac | gccgccctgc | ggttttggac | 1320 |
| tgtaaaataa | gggtgtaata | acttggtgta | ttgtaacccc | gctaaccact | gcgggtcaaac | 1380 |
| cacttgccca | caaaaccact | aatggcaccc | cggggaatac | ctgcataagt | aggtgggcgg | 1440 |
| gccaagatag | gggcgcgatt | gctgcgatct | ggaggacaaa | ttacacacac | ttgcgcctga | 1500 |
| gcgccaagca | cagggttggt | ggtcctcata | ttcacgaggt | cgctgagagc | acggtgggct | 1560 |
| aatgttgcca | tggttagcat | atactaccca | aatatctgga | tagcatatgc | tatcctaata | 1620 |
| tatatctggg | tagcataggc | tatcctaata | tatatctggg | tagcatatgc | tatcctaata | 1680 |
| tatatctggg | tagcatatgc | tatcctaata | tatatctggg | tagcatatgc | tatcctaata | 1740 |
| tatatctggg | tagcatatgc | tatcctaata | tatatctggg | tagcatatgc | tatcctaata | 1800 |
| tgtatccggg | tagcatatgc | tatcctaata | gagattaggg | tagtatatgc | tatcctaata | 1860 |
| tatatctggg | tagcatatgc | tatcctaata | tctggatagc | atatgctatc | ctaatactata | 1920 |
| tctgggtagc | atatgctatc | ctaatactata | tctgggtagc | ataggctatc | ctaatactata | 1980 |
| tctgggtagc | atatgctatc | ctaatactata | tctgggtagt | atatgctatc | ctaatactata | 2040 |
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Lys Phe Glu Leu Gly Leu Glu Phe Pro Asn Leu Pro Tyr Tyr Ile Asp
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Gly Asp Val Lys Leu Thr Gln Ser Met Ala Ile Ile Arg Tyr Ile Ala
65 70 75 80

Asp Lys His Asn Met Leu Gly Gly Cys Pro Lys Glu Arg Ala Glu Ile
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Ser Met Leu Glu Gly Ala Val Leu Asp Ile Arg Tyr Gly Val Ser Arg
100 105 110

Ile Ala Tyr Ser Lys Asp Phe Glu Thr Leu Lys Val Asp Phe Leu Ser
115 120 125

Lys Leu Pro Glu Met Leu Lys Met Phe Glu Asp Arg Leu Cys His Lys
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Thr Tyr Leu Asn Gly Asp His Val Thr His Pro Asp Phe Met Leu Tyr
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Asp Ala Leu Asp Val Val Leu Tyr Met Asp Pro Met Cys Leu Asp Ala
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Phe Pro Lys Leu Val Cys Phe Lys Lys Arg Ile Glu Ala Ile Pro Gln
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Ile Asp Lys Tyr Leu Lys Ser Ser Lys Tyr Ile Ala Trp Pro Leu Gln
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Gly Trp Gln Ala Thr Phe Gly Gly Gly Asp His Pro Pro Lys Ala Ser
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Met Thr Gly Gly Gln Gln Met Gly Arg Asp Leu Tyr Asp Asp Asp Asp
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Lys Leu Ala Cys Gly Gly Gln Asp Gln Gly Arg Arg Val Glu Lys Ile
245 250 255

Ile Gly Ser Gly Ala Gln Ala Gln Lys Arg Leu Asp Asp Ser Lys Pro
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Ser Cys Ile Leu Pro Ser Pro Ser Ser Leu Ser Glu Thr Pro Asp Pro
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Ser Gln Gly Pro Val Ala Gln Ser Ser Arg Glu Ala Ser Ala Trp Met
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Thr Ile Leu Ser Pro Ala Ala Asp Ser Thr Pro Asp Pro Gly Val Gln
325 330 335

Gln Leu Pro Lys Gly Glu Pro Glu Thr Asp Leu Asn Pro Glu Leu Pro
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Ala Ala His Leu Ile Gly Ala Trp Met Ser Gly Gln Gly Leu Ser Trp
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Pro Thr His Gly Leu Ala Leu Pro Gln Asp Gly Val Tyr Tyr Leu Tyr
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Cys His Val Gly Tyr Arg Gly Arg Thr Pro Pro Ala Gly Arg Ser Arg
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Tyr Gly Arg Gly Ser Pro Glu Leu Leu Leu Glu Gly Ala Glu Thr Val
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Thr Pro Val Val Asp Pro Ile Gly Tyr Gly Ser Leu Trp Tyr Thr Ser
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Val Gly Phe Gly Gly Leu Ala Gln Leu Arg Ser Gly Glu Arg Val Tyr
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Leu Val Gln Pro Thr Arg Leu Leu Leu Glu Tyr Leu Glu Glu Lys Tyr
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Glu Glu His Leu Tyr Glu Arg Asp Glu Gly Asp Lys Trp Arg Asn Lys
35 40 45

Lys Phe Glu Leu Gly Leu Glu Phe Pro Asn Leu Pro Tyr Tyr Ile Asp
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Gly Asp Val Lys Leu Thr Gln Ser Met Ala Ile Ile Arg Tyr Ile Ala
65 70 75 80

Asp Lys His Asn Met Leu Gly Gly Cys Pro Lys Glu Arg Ala Glu Ile
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Ser Met Leu Glu Gly Ala Val Leu Asp Ile Arg Tyr Gly Val Ser Arg
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Ile Ala Tyr Ser Lys Asp Phe Glu Thr Leu Lys Val Asp Phe Leu Ser
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Lys Leu Pro Glu Met Leu Lys Met Phe Glu Asp Arg Leu Cys His Lys
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Thr Tyr Leu Asn Gly Asp His Val Thr His Pro Asp Phe Met Leu Tyr
145 150 155 160

Asp Ala Leu Asp Val Val Leu Tyr Met Asp Pro Met Cys Leu Asp Ala
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Phe Pro Lys Leu Val Cys Phe Lys Lys Arg Ile Glu Ala Ile Pro Gln
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Gly Trp Gln Ala Thr Phe Gly Gly Gly Asp His Pro Pro Lys Ala Ser
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Gln Phe Ser Pro Thr His Gly Leu Ala Leu Pro Gln Asp Gly Val Tyr
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Tyr Leu Tyr Cys His Val Gly Tyr Arg Gly Arg Thr Pro Pro Ala Gly
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Arg Ser Arg Ala Arg Ser Leu Thr Leu Arg Ser Ala Leu Tyr Arg Ala
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Gly Gly Ala Tyr Gly Arg Gly Ser Pro Glu Leu Leu Leu Glu Gly Ala
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Glu Thr Val Thr Pro Val Val Asp Pro Ile Gly Tyr Gly Ser Leu Trp
370 375 380

Tyr Thr Ser Val Gly Phe Gly Gly Leu Ala Gln Leu Arg Ser Gly Glu
385 390 395 400

Arg Val Tyr Val Asn Ile Ser His Pro Asp Met Val Asp Tyr Arg Arg
405 410 415

Gly Lys Thr Phe Phe Gly Ala Val Met Val Gly
420 425

<210> 291

<211> 311

<212> PRT

<213> Artificial Sequence

<220>

<223> his-myc-EK-C-LT_49-306 fusion protein

<400> 291

Ala Pro Leu Val His His His His His His Gly Pro Leu Val Asp Val
1 5 10 15

Ala Ser Asn Glu Gln Lys Leu Ile Ser Glu Glu Asp Leu Ala Ser Met
20 25 30

Thr Gly Gly Gln Gln Met Gly Arg Asp Leu Tyr Asp Asp Asp Asp Lys
35 40 45

| | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|
| Leu | Ala | Cys | Gly | Gly | Gln | Asp | Gln | Gly | Arg | Arg | Val | Glu | Lys | Ile | Ile | |
| 50 | | | | | | 55 | | | | | 60 | | | | | |
| Gly | Ser | Gly | Ala | Gln | Ala | Gln | Lys | Arg | Leu | Asp | Asp | Ser | Lys | Pro | Ser | |
| 65 | | | | | 70 | | | | | 75 | | | | | 80 | |
| Cys | Ile | Leu | Pro | Ser | Pro | Ser | Ser | Leu | Ser | Glu | Thr | Pro | Asp | Pro | Arg | |
| | | | | 85 | | | | | 90 | | | | | 95 | | |
| Leu | His | Pro | Gln | Arg | Ser | Asn | Ala | Ser | Arg | Asn | Leu | Ala | Ser | Thr | Ser | |
| | | | 100 | | | | | 105 | | | | | | 110 | | |
| Gln | Gly | Pro | Val | Ala | Gln | Ser | Ser | Arg | Glu | Ala | Ser | Ala | Trp | Met | Thr | |
| | | 115 | | | | | 120 | | | | | 125 | | | | |
| Ile | Leu | Ser | Pro | Ala | Ala | Asp | Ser | Thr | Pro | Asp | Pro | Gly | Val | Gln | Gln | |
| 130 | | | | | | 135 | | | | | 140 | | | | | |
| Leu | Pro | Lys | Gly | Glu | Pro | Glu | Thr | Asp | Leu | Asn | Pro | Glu | Leu | Pro | Ala | |
| 145 | | | | | 150 | | | | | 155 | | | | | 160 | |
| Ala | His | Leu | Ile | Gly | Ala | Trp | Met | Ser | Gly | Gln | Gly | Leu | Ser | Trp | Glu | |
| | | | | 165 | | | | | 170 | | | | | 175 | | |
| Ala | Ser | Gln | Glu | Glu | Ala | Phe | Leu | Arg | Ser | Gly | Ala | Gln | Phe | Ser | Pro | |
| | | | 180 | | | | | 185 | | | | | 190 | | | |
| Thr | His | Gly | Leu | Ala | Leu | Pro | Gln | Asp | Gly | Val | Tyr | Tyr | Leu | Tyr | Cys | |
| | | 195 | | | | | 200 | | | | | 205 | | | | |
| His | Val | Gly | Tyr | Arg | Gly | Arg | Thr | Pro | Pro | Ala | Gly | Arg | Ser | Arg | Ala | |
| | 210 | | | | | 215 | | | | | 220 | | | | | |
| Arg | Ser | Leu | Thr | Leu | Arg | Ser | Ala | Leu | Tyr | Arg | Ala | Gly | Gly | Ala | Tyr | |
| 225 | | | | | 230 | | | | | 235 | | | | | 240 | |
| Gly | Arg | Gly | Ser | Pro | Glu | Leu | Leu | Leu | Glu | Gly | Ala | Glu | Thr | Val | Thr | |
| | | | | 245 | | | | | 250 | | | | | 255 | | |
| Pro | Val | Val | Asp | Pro | Ile | Gly | Tyr | Gly | Ser | Leu | Trp | Tyr | Thr | Ser | Val | |
| | | | 260 | | | | | 265 | | | | | 270 | | | |
| Gly | Phe | Gly | Gly | Leu | Ala | Gln | Leu | Arg | Ser | Gly | Glu | Arg | Val | Tyr | Val | |
| | | 275 | | | | | 280 | | | | | 285 | | | | |

Asn Ile Ser His Pro Asp Met Val Asp Tyr Arg Arg Gly Lys Thr Phe
290 295 300

Phe Gly Ala Val Met Val Gly
305 310

<210> 292

<211> 234

<212> PRT

<213> Artificial Sequence

<220>

<223> his-myc-EK-C-LT_126-306 fusion protein

<400> 292

Ala Pro Leu Val His His His His His Gly Pro Leu Val Asp Val
1 5 10 15

Ala Ser Asn Glu Gln Lys Leu Ile Ser Glu Glu Asp Leu Ala Ser Met
20 25 30

Thr Gly Gly Gln Gln Met Gly Arg Asp Leu Tyr Asp Asp Asp Asp Lys
35 40 45

Leu Ala Cys Gly Gly Ser Pro Ala Ala Asp Ser Thr Pro Asp Pro Gly
50 55 60

Val Gln Gln Leu Pro Lys Gly Glu Pro Glu Thr Asp Leu Asn Pro Glu
65 70 75 80

Leu Pro Ala Ala His Leu Ile Gly Ala Trp Met Ser Gly Gln Gly Leu
85 90 95

Ser Trp Glu Ala Ser Gln Glu Glu Ala Phe Leu Arg Ser Gly Ala Gln
100 105 110

Phe Ser Pro Thr His Gly Leu Ala Leu Pro Gln Asp Gly Val Tyr Tyr
115 120 125

Leu Tyr Cys His Val Gly Tyr Arg Gly Arg Thr Pro Pro Ala Gly Arg
130 135 140

Ser Arg Ala Arg Ser Leu Thr Leu Arg Ser Ala Leu Tyr Arg Ala Gly
145 150 155 160

Gly Ala Tyr Gly Arg Gly Ser Pro Glu Leu Leu Leu Glu Gly Ala Glu
165 170 175

Thr Val Thr Pro Val Val Asp Pro Ile Gly Tyr Gly Ser Leu Trp Tyr
180 185 190

Thr Ser Val Gly Phe Gly Gly Leu Ala Gln Leu Arg Ser Gly Glu Arg
195 200 205

Val Tyr Val Asn Ile Ser His Pro Asp Met Val Asp Tyr Arg Arg Gly
210 215 220

Lys Thr Phe Phe Gly Ala Val Met Val Gly
225 230

<210> 293
<211> 43
<212> DNA
<213> Artificial Sequence

<220>
<223> MCS-1F primer

<400> 293
tatggatccg gctagcgctc gagggtttaa acggcggccg cat 43

<210> 294
<211> 45
<212> DNA
<213> Artificial Sequence

<220>
<223> MCS-1R primer

<400> 294
tcgaatgcgg ccgccgttta aaccctcgag cgctagccgg atcca 45

<210> 295
<211> 58
<212> DNA
<213> Artificial Sequence

<220>
<223> Bamhis6-EK-Nhe-F oligonucleotide

<400> 295
gatccacacc accaccacca ccacggttct ggtgacgacg atgacaaagc gctagccc 58

<210> 296
<211> 58
<212> DNA
<213> Artificial Sequence

<220>
<223> Bamhis6-EK-Nhe-R oligonucleotide

<400> 296
tcgaggggcta gcgctttgtc atcgtcgtca ccagaaccgt ggtgggtggg gtggtgtg 58

<210> 297
<211> 42
<212> DNA
<213> Artificial Sequence

<220>
<223> oligo1F-C-glycine-linker

<400> 297
tcgaggggtgg tggtgggtgg tgcggttaat aagtttaaac gc 42

<210> 298
<211> 42
<212> DNA
<213> Artificial Sequence

<220>
<223> oligo1R-C-glycine-linker

<400> 298
ggccgcgttt aaacttatta accgcaacca ccaccaccac cc 42

<210> 299
<211> 51
<212> DNA
<213> Artificial Sequence

<220>
<223> oligo1F-C-gamma1-linker

<400> 299
tcgaggataa aaccacacc tctccgccgt gtgggtaata agtttaaacg c 51

<210> 300
<211> 51
<212> DNA
<213> Artificial Sequence

<220>
<223> oligo1R-C-gamma1-linker

<400> 300
ggccgcgttt aaacttatta accacacggc ggagaggtgt gggttttatc c 51

<210> 301
<211> 36
<212> DNA
<213> Artificial Sequence

<220>
<223> oligo1FA-C-gamma3-linker

<400> 301
tcgagccgaa accgtctacc ccgcccgggtt cttctg 36

<210> 302
<211> 38
<212> DNA
<213> Artificial Sequence

<220>
<223> oligo1RA-C-gamma3-linker

<400> 302
caccaccaga agaaccggc ggggtagacg gtttcggc 38

<210> 303
<211> 39
<212> DNA
<213> Artificial Sequence

<220>
<223> oligo2FB-C-gamma3-linker

<400> 303
gtggtgctcc gggtggttgc ggtaataag tttaaacgc 39

<210> 304
<211> 37
<212> DNA
<213> Artificial Sequence

<220>
<223> oligo2RB-C-gamma3-linker

<400> 304
ggccgcggtt aaacttatta accgcaacca cccggag 37

<210> 305
<211> 33
<212> DNA
<213> Artificial Sequence

<220>
<223> rMIF-F oligonucleotide

<400> 305
ggaattccat atgcctatgt tcacgtgaa cac 33

<210> 306
<211> 29
<212> DNA
<213> Artificial Sequence

<220>
<223> rMIF-Xho-R oligonucleotide

<400> 306

cccgctcgag agcgaagggtg gaaccgttc

29

<210> 307
<211> 124
<212> PRT
<213> Artificial Sequence

<220>
<223> rMIF-C1

<400> 307

Met Pro Met Phe Ile Val Asn Thr Asn Val Pro Arg Ala Ser Val Pro
1 5 10 15

Glu Gly Phe Leu Ser Glu Leu Thr Gln Gln Leu Ala Gln Ala Thr Gly
20 25 30

Lys Pro Ala Gln Tyr Ile Ala Val His Val Val Pro Asp Gln Leu Met
35 40 45

Thr Phe Ser Gly Thr Ser Asp Pro Cys Ala Leu Cys Ser Leu His Ser
50 55 60

Ile Gly Lys Ile Gly Gly Ala Gln Asn Arg Asn Tyr Ser Lys Leu Leu
65 70 75 80

Cys Gly Leu Leu Ser Asp Arg Leu His Ile Ser Pro Asp Arg Val Tyr
85 90 95

Ile Asn Tyr Tyr Asp Met Asn Ala Ala Asn Val Gly Trp Asn Gly Ser
100 105 110

Thr Phe Ala Leu Glu Gly Gly Gly Gly Cys Gly
115 120

<210> 308
<211> 127
<212> PRT
<213> Artificial Sequence

<220>
<223> rMIF-C2

<400> 308

Met Pro Met Phe Ile Val Asn Thr Asn Val Pro Arg Ala Ser Val Pro
1 5 10 15

Glu Gly Phe Leu Ser Glu Leu Thr Gln Gln Leu Ala Gln Ala Thr Gly
20 25 30

Lys Pro Ala Gln Tyr Ile Ala Val His Val Val Pro Asp Gln Leu Met
35 40 45

Thr Phe Ser Gly Thr Ser Asp Pro Cys Ala Leu Cys Ser Leu His Ser
50 55 60

Ile Gly Lys Ile Gly Gly Ala Gln Asn Arg Asn Tyr Ser Lys Leu Leu
65 70 75 80

Cys Gly Leu Leu Ser Asp Arg Leu His Ile Ser Pro Asp Arg Val Tyr
85 90 95

Ile Asn Tyr Tyr Asp Met Asn Ala Ala Asn Val Gly Trp Asn Gly Ser
100 105 110

Thr Phe Ala Leu Glu Asp Lys Thr His Thr Ser Pro Pro Cys Gly
115 120 125

<210> 309
<211> 135
<212> PRT
<213> Artificial Sequence

<220>
<223> rMIF-C3

<400> 309

Met Pro Met Phe Ile Val Asn Thr Asn Val Pro Arg Ala Ser Val Pro
1 5 10 15

Glu Gly Phe Leu Ser Glu Leu Thr Gln Gln Leu Ala Gln Ala Thr Gly
20 25 30

Lys Pro Ala Gln Tyr Ile Ala Val His Val Val Pro Asp Gln Leu Met
35 40 45

Thr Phe Ser Gly Thr Ser Asp Pro Cys Ala Leu Cys Ser Leu His Ser
50 55 60

Ile Gly Lys Ile Gly Gly Ala Gln Asn Arg Asn Tyr Ser Lys Leu Leu
65 70 75 80

Cys Gly Leu Leu Ser Asp Arg Leu His Ile Ser Pro Asp Arg Val Tyr
85 90 95

Ile Asn Tyr Tyr Asp Met Asn Ala Ala Asn Val Gly Trp Asn Gly Ser

| | | |
|-----------------------------|-------------------------------------|-----|
| 100 | 105 | 110 |
| Thr Phe Ala Leu Glu Pro Lys | Pro Ser Thr Pro Pro Gly Ser Ser Gly | |
| 115 | 120 | 125 |

| |
|-----------------------------|
| Gly Ala Pro Gly Gly Cys Gly |
| 130 135 |

<210> 310
 <211> 124
 <212> PRT
 <213> Homo sapiens

<400> 310

| |
|---|
| Met Pro Met Phe Ile Val Asn Thr Asn Val Pro Arg Ala Ser Val Pro |
| 1 5 10 15 |

| |
|---|
| Asp Gly Phe Leu Ser Glu Leu Thr Gln Gln Leu Ala Gln Ala Thr Gly |
| 20 25 30 |

| |
|---|
| Lys Pro Pro Gln Tyr Ile Ala Val His Val Val Pro Asp Gln Leu Met |
| 35 40 45 |

| |
|---|
| Ala Phe Gly Gly Ser Ser Glu Pro Cys Ala Leu Cys Ser Leu His Ser |
| 50 55 60 |

| |
|---|
| Ile Gly Lys Ile Gly Gly Ala Gln Asn Arg Ser Tyr Ser Lys Leu Leu |
| 65 70 75 80 |

| |
|---|
| Cys Gly Leu Leu Ala Glu Arg Leu Arg Ile Ser Pro Asp Arg Val Tyr |
| 85 90 95 |

| |
|---|
| Ile Asn Tyr Tyr Asp Met Asn Ala Ala Asn Val Gly Trp Asn Asn Ser |
| 100 105 110 |

| |
|---|
| Thr Phe Ala Leu Glu Gly Gly Gly Gly Gly Cys Gly |
| 115 120 |

<210> 311
 <211> 123
 <212> PRT
 <213> Homo sapiens

<400> 311

| |
|---|
| Pro Met Phe Ile Val Asn Thr Asn Val Pro Arg Ala Ser Val Pro Asp |
| 1 5 10 15 |

Gly Phe Leu Ser Glu Leu Thr Gln Gln Leu Ala Gln Ala Thr Gly Lys
20 25 30

Pro Pro Gln Tyr Ile Ala Val His Val Val Pro Asp Gln Leu Met Ala
35 40 45

Phe Gly Gly Ser Ser Glu Pro Cys Ala Leu Cys Ser Leu His Ser Ile
50 55 60

Gly Lys Ile Gly Gly Ala Gln Asn Arg Ser Tyr Ser Lys Leu Leu Cys
65 70 75 80

Gly Leu Leu Ala Glu Arg Leu Arg Ile Ser Pro Asp Arg Val Tyr Ile
85 90 95

Asn Tyr Tyr Asp Met Asn Ala Ala Asn Val Gly Trp Asn Asn Ser Thr
100 105 110

Phe Ala Leu Glu Gly Gly Gly Gly Gly Cys Gly
115 120

<210> 312
<211> 127
<212> PRT
<213> Homo sapiens

<400> 312

Met Pro Met Phe Ile Val Asn Thr Asn Val Pro Arg Ala Ser Val Pro
1 5 10 15

Asp Gly Phe Leu Ser Glu Leu Thr Gln Gln Leu Ala Gln Ala Thr Gly
20 25 30

Lys Pro Pro Gln Tyr Ile Ala Val His Val Val Pro Asp Gln Leu Met
35 40 45

Ala Phe Gly Gly Ser Ser Glu Pro Cys Ala Leu Cys Ser Leu His Ser
50 55 60

Ile Gly Lys Ile Gly Gly Ala Gln Asn Arg Ser Tyr Ser Lys Leu Leu
65 70 75 80

Cys Gly Leu Leu Ala Glu Arg Leu Arg Ile Ser Pro Asp Arg Val Tyr
85 90 95

Ile Asn Tyr Tyr Asp Met Asn Ala Ala Asn Val Gly Trp Asn Asn Ser
100 105 110

Thr Phe Ala Leu Glu Asp Lys Thr His Thr Ser Pro Pro Cys Gly
115 120 125

<210> 313
<211> 126
<212> PRT
<213> Homo sapiens

<400> 313

Pro Met Phe Ile Val Asn Thr Asn Val Pro Arg Ala Ser Val Pro Asp
1 5 10 15

Gly Phe Leu Ser Glu Leu Thr Gln Gln Leu Ala Gln Ala Thr Gly Lys
20 25 30

Pro Pro Gln Tyr Ile Ala Val His Val Val Pro Asp Gln Leu Met Ala
35 40 45

Phe Gly Gly Ser Ser Glu Pro Cys Ala Leu Cys Ser Leu His Ser Ile
50 55 60

Gly Lys Ile Gly Gly Ala Gln Asn Arg Ser Tyr Ser Lys Leu Leu Cys
65 70 75 80

Gly Leu Leu Ala Glu Arg Leu Arg Ile Ser Pro Asp Arg Val Tyr Ile
85 90 95

Asn Tyr Tyr Asp Met Asn Ala Ala Asn Val Gly Trp Asn Asn Ser Thr
100 105 110

Phe Ala Leu Glu Asp Lys Thr His Thr Ser Pro Pro Cys Gly
115 120 125

<210> 314
<211> 135
<212> PRT
<213> Homo sapiens

<400> 314

Met Pro Met Phe Ile Val Asn Thr Asn Val Pro Arg Ala Ser Val Pro
1 5 10 15

Asp Gly Phe Leu Ser Glu Leu Thr Gln Gln Leu Ala Gln Ala Thr Gly
20 25 30

Lys Pro Pro Gln Tyr Ile Ala Val His Val Val Pro Asp Gln Leu Met

35 40 45

Ala Phe Gly Gly Ser Ser Glu Pro Cys Ala Leu Cys Ser Leu His Ser
50 55 60

Ile Gly Lys Ile Gly Gly Ala Gln Asn Arg Ser Tyr Ser Lys Leu Leu
65 70 75 80

Cys Gly Leu Leu Ala Glu Arg Leu Arg Ile Ser Pro Asp Arg Val Tyr
85 90 95

Ile Asn Tyr Tyr Asp Met Asn Ala Ala Asn Val Gly Trp Asn Asn Ser
100 105 110

Thr Phe Ala Leu Glu Pro Lys Pro Ser Thr Pro Pro Gly Ser Ser Gly
115 120 125

Gly Ala Pro Gly Gly Cys Gly
130 135

<210> 315
<211> 134
<212> PRT
<213> Homo sapiens

<400> 315

Pro Met Phe Ile Val Asn Thr Asn Val Pro Arg Ala Ser Val Pro Asp
1 5 10 15

Gly Phe Leu Ser Glu Leu Thr Gln Gln Leu Ala Gln Ala Thr Gly Lys
20 25 30

Pro Pro Gln Tyr Ile Ala Val His Val Val Pro Asp Gln Leu Met Ala
35 40 45

Phe Gly Gly Ser Ser Glu Pro Cys Ala Leu Cys Ser Leu His Ser Ile
50 55 60

Gly Lys Ile Gly Gly Ala Gln Asn Arg Ser Tyr Ser Lys Leu Leu Cys
65 70 75 80

Gly Leu Leu Ala Glu Arg Leu Arg Ile Ser Pro Asp Arg Val Tyr Ile
85 90 95

Asn Tyr Tyr Asp Met Asn Ala Ala Asn Val Gly Trp Asn Asn Ser Thr
100 105 110

Phe Ala Leu Glu Pro Lys Pro Ser Thr Pro Pro Gly Ser Ser Gly Gly
115 120 125

Ala Pro Gly Gly Cys Gly
130

<210> 316
<211> 62
<212> DNA
<213> Artificial Sequence

<220>
<223> RANKL-UP oligonucleotide

<400> 316
ctgccagggg cccgggtgcg gcggtggcca tcataccac catcaccagc gcttctcagg 60
ag 62

<210> 317
<211> 35
<212> DNA
<213> Artificial Sequence

<220>
<223> RANKL-down oligonucleotide

<400> 317
ccgctcgagt tagtctatgt cctgaacttt gaaag 35

<210> 318
<211> 419
<212> PRT
<213> Artificial Sequence

<220>
<223> GST-PS-C-RANKL construct

<400> 318

Met Ser Pro Ile Leu Gly Tyr Trp Lys Ile Lys Gly Leu Val Gln Pro
1 5 10 15

Thr Arg Leu Leu Leu Glu Tyr Leu Glu Glu Lys Tyr Glu Glu His Leu
20 25 30

Tyr Glu Arg Asp Glu Gly Asp Lys Trp Arg Asn Lys Lys Phe Glu Leu
35 40 45

Gly Leu Glu Phe Pro Asn Leu Pro Tyr Tyr Ile Asp Gly Asp Val Lys
50 55 60

Leu Thr Gln Ser Met Ala Ile Ile Arg Tyr Ile Ala Asp Lys His Asn
65 70 75 80

Met Leu Gly Gly Cys Pro Lys Glu Arg Ala Glu Ile Ser Met Leu Glu
85 90 95

Gly Ala Val Leu Asp Ile Arg Tyr Gly Val Ser Arg Ile Ala Tyr Ser
100 105 110

Lys Asp Phe Glu Thr Leu Lys Val Asp Phe Leu Ser Lys Leu Pro Glu
115 120 125

Met Leu Lys Met Phe Glu Asp Arg Leu Cys His Lys Thr Tyr Leu Asn
130 135 140

Gly Asp His Val Thr His Pro Asp Phe Met Leu Tyr Asp Ala Leu Asp
145 150 155 160

Val Val Leu Tyr Met Asp Pro Met Cys Leu Asp Ala Phe Pro Lys Leu
165 170 175

Val Cys Phe Lys Lys Arg Ile Glu Ala Ile Pro Gln Ile Asp Lys Tyr
180 185 190

Leu Lys Ser Ser Lys Tyr Ile Ala Trp Pro Leu Gln Gly Trp Gln Ala
195 200 205

Thr Phe Gly Gly Gly Asp His Pro Pro Lys Ser Asp Leu Glu Val Leu
210 215 220

Phe Gln Gly Pro Gly Cys Gly Gly Gly His His His His His His Gln
225 230 235 240

Arg Phe Ser Gly Ala Pro Ala Met Met Glu Gly Ser Trp Leu Asp Val
245 250 255

Ala Gln Arg Gly Lys Pro Glu Ala Gln Pro Phe Ala His Leu Thr Ile
260 265 270

Asn Ala Ala Ser Ile Pro Ser Gly Ser His Lys Val Thr Leu Ser Ser
275 280 285

Trp Tyr His Asp Arg Gly Trp Ala Lys Ile Ser Asn Met Thr Leu Ser
290 295 300

Asn Gly Lys Leu Arg Val Asn Gln Asp Gly Phe Tyr Tyr Leu Tyr Ala

| | | | | | | |
|---|-----|-----|--|-----|--|-----|
| 305 | | 310 | | 315 | | 320 |
| Asn Ile Cys Phe Arg His His Glu Thr Ser Gly Ser Val Pro Thr Asp | | | | | | |
| | 325 | | | 330 | | 335 |
| Tyr Leu Gln Leu Met Val Tyr Val Val Lys Thr Ser Ile Lys Ile Pro | | | | | | |
| | 340 | | | 345 | | 350 |
| Ser Ser His Asn Leu Met Lys Gly Gly Ser Thr Lys Asn Trp Ser Gly | | | | | | |
| | 355 | | | 360 | | 365 |
| Asn Ser Glu Phe His Phe Tyr Ser Ile Asn Val Gly Gly Phe Phe Lys | | | | | | |
| | 370 | | | 375 | | 380 |
| Leu Arg Ala Gly Glu Glu Ile Ser Ile Gln Val Ser Asn Pro Ser Leu | | | | | | |
| | 385 | | | 390 | | 400 |
| Leu Asp Pro Asp Gln Asp Ala Thr Tyr Phe Gly Ala Phe Lys Val Gln | | | | | | |
| | 405 | | | 410 | | 415 |

Asp Ile Asp

<210> 319
 <211> 1269
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> GST-PS-C-RANKL construct

<400> 319
 atgtccccta tactagggtta ttggaaaatt aagggccttg tgcaaccac tcgacttctt 60
 ttggaatata ttgaagaaaa atatgaagag catttgatatg agcgcgatga aggtgataaa 120
 tggcgaaaca aaaagtttga attgggtttg gagtttccca atcttcctta ttatattgat 180
 ggtgatgtta aattaacaca gtctatggcc atcatagctt atatagctga caagcacaac 240
 atgttggggtg gttgtccaaa agagcgtgca gagatttcaa tgcttgaagg agcgggtttg 300
 gatattagat acggtgtttc gagaattgca tatagtaaag actttgaaac tctcaaagtt 360
 gattttctta gcaagctacc tgaaatgctg aaaatgttcg aagatcgttt atgtcataaa 420
 acatatttaa atggtgatca tgtaacccat cctgacttca tgttgatatga cgctcttgat 480
 gttgttttat acatggaccc aatgtgcttg gatgcgttcc caaaattagt ttgttttaaa 540
 aaacgtattg aagctatccc acaaattgat aagtacttga aatccagcaa gtatatagca 600
 tggcctttgc agggctggca agccacgttt ggtgggtggcg accatcctcc aaaatcggat 660

```

ctggaagttc tgttccaggg gcccggtg gcggtggcc atcatcacca ccataccag 720
cgcttctcag gagctccagc tatgatggaa ggctcatggt tggatgtggc ccagcgaggc 780
aagcctgagg cccagccatt tgcacacctc accatcaatg ctgccagcat cccatcggtt 840
tcccataaag tcaactctgtc ctcttggtac cacgatcgag gctgggcaa gatctctaac 900
atgacgttaa gcaacggaaa actaagggtt aaccaagatg gcttctatta cctgtacgcc 960
aacatttgct ttcggcatca tgaaacatcg ggaagcgta ctacagacta tcttcagctg 1020
atggtgtatg tcgttaaaac cagcatcaaa atcccaagtt ctcataacct gatgaaagga 1080
gggagcacga aaaactggtc gggcaattct gaattccact tttattccat aaatgttggg 1140
ggatttttca agctccgagc tggatgaaga attagcattc aggtgtccaa cccttccttg 1200
ctggatccgg atcaagatgc gacgtacttt ggggctttca aagttcagga catagactaa 1260
ctcgagcgg                                     1269

```

```

<210> 320
<211> 185
<212> PRT
<213> Homo sapiens

```

```

<400> 320

```

```

Gly Cys Gly Gly Gly Gln His Ile Arg Ala Glu Lys Ala Met Val Asp
1           5           10           15

```

```

Gly Ser Trp Leu Asp Leu Ala Lys Arg Ser Lys Leu Glu Ala Gln Pro
20           25           30

```

```

Phe Ala His Leu Thr Ile Asn Ala Thr Asp Ile Pro Ser Gly Ser His
35           40           45

```

```

Lys Val Ser Leu Ser Ser Trp Tyr His Asp Arg Gly Trp Ala Lys Ile
50           55           60

```

```

Ser Asn Met Thr Phe Ser Asn Gly Lys Leu Ile Val Asn Gln Asp Gly
65           70           75           80

```

```

Phe Tyr Tyr Leu Tyr Ala Asn Ile Cys Phe Arg His His Glu Thr Ser
85           90           95

```

```

Gly Asp Leu Ala Thr Glu Tyr Leu Gln Leu Met Val Tyr Val Thr Lys
100           105           110

```

```

Thr Ser Ile Lys Ile Pro Ser Ser His Thr Leu Met Lys Gly Gly Ser
115           120           125

```

Thr Lys Tyr Trp Ser Gly Asn Ser Glu Phe His Phe Tyr Ser Ile Asn
130 135 140

Val Gly Gly Phe Phe Lys Leu Arg Ser Gly Glu Glu Ile Ser Ile Glu
145 150 155 160

Val Ser Asn Pro Ser Leu Leu Asp Pro Asp Gln Asp Ala Thr Tyr Phe
165 170 175

Gly Ala Phe Lys Val Arg Asp Ile Asp
180 185

<210> 321
<211> 29
<212> DNA
<213> Artificial Sequence

<220>
<223> Primer 5'PrP-BamHI

<400> 321
cgggatccca ccatggtggg gggccttgg

29

<210> 322
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> Primer 3'PrP-NheI

<400> 322
ctagctagcc tggatcttct cccg

24

<210> 323
<211> 350
<212> PRT
<213> Artificial Sequence

<220>
<223> mPrPt-EK-Fc construct

<400> 323

Met Val Gly Gly Leu Gly Gly Tyr Met Leu Gly Ser Ala Met Ser Arg
1 5 10 15

Pro Met Ile His Phe Gly Asn Asp Trp Glu Asp Arg Tyr Tyr Arg Glu
20 25 30

Asn Met Tyr Arg Tyr Pro Asn Gln Val Tyr Tyr Arg Pro Val Asp Gln

| 35 | | | | | 40 | | | | | 45 | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Tyr | Ser | Asn | Gln | Asn | Asn | Phe | Val | His | Asp | Cys | Val | Asn | Ile | Thr | Ile |
| 50 | | | | | | 55 | | | | | 60 | | | | |
| Lys | Gln | His | Thr | Val | Thr | Thr | Thr | Thr | Lys | Gly | Glu | Asn | Phe | Thr | Glu |
| 65 | | | | | 70 | | | | | 75 | | | | | 80 |
| Thr | Asp | Val | Lys | Met | Met | Glu | Arg | Val | Val | Glu | Gln | Met | Cys | Val | Thr |
| | | | | 85 | | | | | 90 | | | | | 95 | |
| Gln | Tyr | Gln | Lys | Glu | Ser | Gln | Ala | Tyr | Tyr | Asp | Gly | Arg | Ser | Arg | Leu |
| | | | 100 | | | | | 105 | | | | | | 110 | |
| Ala | Gly | Gly | Gly | Gly | Cys | Gly | Asp | Asp | Asp | Asp | Lys | Leu | Thr | His | Thr |
| | | | 115 | | | | 120 | | | | | | 125 | | |
| Cys | Pro | Pro | Cys | Pro | Ala | Pro | Glu | Ala | Glu | Gly | Ala | Pro | Ser | Val | Phe |
| | 130 | | | | | 135 | | | | | | 140 | | | |
| Leu | Phe | Pro | Pro | Lys | Pro | Lys | Asp | Thr | Leu | Met | Ile | Ser | Arg | Thr | Pro |
| 145 | | | | | 150 | | | | | 155 | | | | | 160 |
| Glu | Val | Thr | Cys | Val | Val | Val | Asp | Val | Ser | His | Glu | Asp | Pro | Glu | Val |
| | | | | 165 | | | | | 170 | | | | | | 175 |
| Lys | Phe | Asn | Trp | Tyr | Val | Asp | Gly | Val | Glu | Val | His | Asn | Ala | Lys | Thr |
| | | | 180 | | | | | 185 | | | | | | 190 | |
| Lys | Pro | Arg | Glu | Glu | Gln | Tyr | Asn | Ser | Thr | Tyr | Arg | Val | Val | Ser | Val |
| | | 195 | | | | | 200 | | | | | 205 | | | |
| Leu | Thr | Val | Leu | His | Gln | Asp | Trp | Leu | Asn | Gly | Lys | Glu | Tyr | Lys | Cys |
| | 210 | | | | | 215 | | | | | 220 | | | | |
| Lys | Val | Ser | Asn | Lys | Ala | Leu | Pro | Ala | Ser | Ile | Glu | Lys | Thr | Ile | Ser |
| 225 | | | | | 230 | | | | | 235 | | | | | 240 |
| Lys | Ala | Lys | Gly | Gln | Pro | Arg | Glu | Pro | Gln | Val | Tyr | Thr | Leu | Pro | Pro |
| | | | | 245 | | | | | 250 | | | | | 255 | |
| Ser | Arg | Asp | Glu | Leu | Thr | Lys | Asn | Gln | Val | Ser | Leu | Thr | Cys | Leu | Val |
| | | | 260 | | | | | 265 | | | | | 270 | | |
| Lys | Gly | Phe | Tyr | Pro | Ser | Asp | Ile | Ala | Val | Glu | Trp | Glu | Ser | Asn | Gly |
| | | | 275 | | | | 280 | | | | | 285 | | | |

Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro Val Leu Asp Ser Asp
290 295 300

Gly Ser Phe Phe Leu Tyr Ser Lys Leu Thr Val Asp Lys Ser Arg Trp
305 310 315 320

Gln Gln Gly Asn Val Phe Ser Cys Ser Val Met His Glu Ala Leu His
325 330 335

Asn His Tyr Thr Gln Lys Ser Leu Ser Leu Ser Pro Gly Lys
340 345 350

<210> 324

<211> 124

<212> PRT

<213> Artificial Sequence

<220>

<223> mPrPt construct

<400> 324

Met Val Gly Gly Leu Gly Gly Tyr Met Leu Gly Ser Ala Met Ser Arg
1 5 10 15

Pro Met Ile His Phe Gly Asn Asp Trp Glu Asp Arg Tyr Tyr Arg Glu
20 25 30

Asn Met Tyr Arg Tyr Pro Asn Gln Val Tyr Tyr Arg Pro Val Asp Gln
35 40 45

Tyr Ser Asn Gln Asn Asn Phe Val His Asp Cys Val Asn Ile Thr Ile
50 55 60

Lys Gln His Thr Val Thr Thr Thr Thr Lys Gly Glu Asn Phe Thr Glu
65 70 75 80

Thr Asp Val Lys Met Met Glu Arg Val Val Glu Gln Met Cys Val Thr
85 90 95

Gln Tyr Gln Lys Glu Ser Gln Ala Tyr Tyr Asp Gly Arg Ser Arg Leu
100 105 110

Ala Gly Gly Gly Gly Cys Gly Asp Asp Asp Asp Lys
115 120

<210> 325

<211> 102
<212> PRT
<213> Artificial Sequence

<220>
<223> human resistin-C-Xa construct

<400> 325

Ser Ser Lys Thr Leu Cys Ser Met Glu Glu Ala Ile Asn Glu Arg Ile
1 5 10 15

Gln Glu Val Ala Gly Ser Leu Ile Phe Arg Ala Ile Ser Ser Ile Gly
20 25 30

Leu Glu Cys Gln Ser Val Thr Ser Arg Gly Asp Leu Ala Thr Cys Pro
35 40 45

Arg Gly Phe Ala Val Thr Gly Cys Thr Cys Gly Ser Ala Cys Gly Ser
50 55 60

Trp Asp Val Arg Ala Glu Thr Thr Cys His Cys Gln Cys Ala Gly Met
65 70 75 80

Asp Trp Thr Gly Ala Arg Cys Cys Arg Val Gln Pro Gly Gly Gly Gly
85 90 95

Cys Gly Ile Glu Gly Arg
100

<210> 326
<211> 103
<212> PRT
<213> Artificial Sequence

<220>
<223> human resistin-C-EK construct

<400> 326

Ser Ser Lys Thr Leu Cys Ser Met Glu Glu Ala Ile Asn Glu Arg Ile
1 5 10 15

Gln Glu Val Ala Gly Ser Leu Ile Phe Arg Ala Ile Ser Ser Ile Gly
20 25 30

Leu Glu Cys Gln Ser Val Thr Ser Arg Gly Asp Leu Ala Thr Cys Pro
35 40 45

Arg Gly Phe Ala Val Thr Gly Cys Thr Cys Gly Ser Ala Cys Gly Ser
50 55 60

Trp Asp Val Arg Ala Glu Thr Thr Cys His Cys Gln Cys Ala Gly Met
65 70 75 80

Asp Trp Thr Gly Ala Arg Cys Cys Arg Val Gln Pro Gly Gly Gly Gly
85 90 95

Cys Gly Asp Asp Asp Asp Lys
100

<210> 327

<211> 98

<212> PRT

<213> Artificial Sequence

<220>

<223> human resisititin-C construct

<400> 327

Ser Ser Lys Thr Leu Cys Ser Met Glu Glu Ala Ile Asn Glu Arg Ile
1 5 10 15

Gln Glu Val Ala Gly Ser Leu Ile Phe Arg Ala Ile Ser Ser Ile Gly
20 25 30

Leu Glu Cys Gln Ser Val Thr Ser Arg Gly Asp Leu Ala Thr Cys Pro
35 40 45

Arg Gly Phe Ala Val Thr Gly Cys Thr Cys Gly Ser Ala Cys Gly Ser
50 55 60

Trp Asp Val Arg Ala Glu Thr Thr Cys His Cys Gln Cys Ala Gly Met
65 70 75 80

Asp Trp Thr Gly Ala Arg Cys Cys Arg Val Gln Pro Gly Gly Gly Gly
85 90 95

Cys Gly

<210> 328

<211> 132

<212> PRT

<213> Artificial Sequence

<220>

<223> mouse C-IL-13-F construct

<400> 328

Ala Asp Pro Gly Cys Gly Gly Gly Gly Gly Leu Ala Gly Pro Val Pro
1 5 10 15

Arg Ser Val Ser Leu Pro Leu Thr Leu Lys Glu Leu Ile Glu Glu Leu
20 25 30

Ser Asn Ile Thr Gln Asp Gln Thr Pro Leu Cys Asn Gly Ser Met Val
35 40 45

Trp Ser Val Asp Leu Ala Ala Gly Gly Phe Cys Val Ala Leu Asp Ser
50 55 60

Leu Thr Asn Ile Ser Asn Cys Asn Ala Ile Tyr Arg Thr Gln Arg Ile
65 70 75 80

Leu His Gly Leu Cys Asn Arg Lys Ala Pro Thr Thr Val Ser Ser Leu
85 90 95

Pro Asp Thr Lys Ile Glu Val Ala His Phe Ile Thr Lys Leu Leu Ser
100 105 110

Tyr Thr Lys Gln Leu Phe Arg His Gly Pro Phe Leu Glu Val Leu Ala
115 120 125

Ile Glu Gly Arg
130

<210> 329

<211> 119

<212> PRT

<213> Artificial Sequence

<220>

<223> mouse C-IL-13-S construct

<400> 329

Leu Ala Cys Gly Gly Gly Gly Gly Gly Pro Val Pro Arg Ser Val Ser
1 5 10 15

Leu Pro Leu Thr Leu Lys Glu Leu Ile Glu Glu Leu Ser Asn Ile Thr
20 25 30

Gln Asp Gln Thr Pro Leu Cys Asn Gly Ser Met Val Trp Ser Val Asp
35 40 45

Leu Ala Ala Gly Gly Phe Cys Val Ala Leu Asp Ser Leu Thr Asn Ile
50 55 60

Ser Asn Cys Asn Ala Ile Tyr Arg Thr Gln Arg Ile Leu His Gly Leu
65 70 75 80

Cys Asn Arg Lys Ala Pro Thr Thr Val Ser Ser Leu Pro Asp Thr Lys
85 90 95

Ile Glu Val Ala His Phe Ile Thr Lys Leu Leu Ser Tyr Thr Lys Gln
100 105 110

Leu Phe Arg His Gly Pro Phe
115

<210> 330

<211> 133

<212> PRT

<213> Artificial Sequence

<220>

<223> human C-IL-13-F construct

<400> 330

Ala Asp Pro Gly Cys Gly Gly Gly Gly Gly Leu Ala Gly Pro Val Pro
1 5 10 15

Pro Ser Thr Ala Leu Arg Glu Leu Ile Glu Glu Leu Val Asn Ile Thr
20 25 30

Gln Asn Gln Lys Ala Pro Leu Cys Asn Gly Ser Met Val Trp Ser Ile
35 40 45

Asn Leu Thr Ala Gly Met Tyr Cys Ala Ala Leu Glu Ser Leu Ile Asn
50 55 60

Val Ser Gly Cys Ser Ala Ile Glu Lys Thr Gln Arg Met Leu Ser Gly
65 70 75 80

Phe Cys Pro His Lys Val Ser Ala Gly Gln Phe Ser Ser Leu His Val
85 90 95

Arg Asp Thr Lys Ile Glu Val Ala Gln Phe Val Lys Asp Leu Leu Leu
100 105 110

His Leu Lys Lys Leu Phe Arg Glu Gly Arg Phe Asn Leu Glu Val Leu
115 120 125

Ala Ile Glu Gly Arg

130

<210> 331
<211> 120
<212> PRT
<213> Artificial Sequence

<220>
<223> human C-IL-13-S construct

<400> 331

Leu Ala Cys Gly Gly Gly Gly Gly Gly Pro Val Pro Pro Ser Thr Ala
1 5 10 15

Leu Arg Glu Leu Ile Glu Glu Leu Val Asn Ile Thr Gln Asn Gln Lys
20 25 30

Ala Pro Leu Cys Asn Gly Ser Met Val Trp Ser Ile Asn Leu Thr Ala
35 40 45

Gly Met Tyr Cys Ala Ala Leu Glu Ser Leu Ile Asn Val Ser Gly Cys
50 55 60

Ser Ala Ile Glu Lys Thr Gln Arg Met Leu Ser Gly Phe Cys Pro His
65 70 75 80

Lys Val Ser Ala Gly Gln Phe Ser Ser Leu His Val Arg Asp Thr Lys
85 90 95

Ile Glu Val Ala Gln Phe Val Lys Asp Leu Leu Leu His Leu Lys Lys
100 105 110

Leu Phe Arg Glu Gly Arg Phe Asn
115 120

<210> 332
<211> 136
<212> PRT
<213> Artificial Sequence

<220>
<223> mouse C-IL-5-E construct

<400> 332

Ala Leu Val Gly Cys Gly Gly Pro Lys Pro Ser Thr Pro Pro Gly Ser
1 5 10 15

Ser Gly Gly Ala Pro Ala Ser Met Glu Ile Pro Met Ser Thr Val Val
20 25 30

Lys Glu Thr Leu Thr Gln Leu Ser Ala His Arg Ala Leu Leu Thr Ser
35 40 45

Asn Glu Thr Met Arg Leu Pro Val Pro Thr His Lys Asn His Gln Leu
50 55 60

Cys Ile Gly Glu Ile Phe Gln Gly Leu Asp Ile Leu Lys Asn Gln Thr
65 70 75 80

Val Arg Gly Gly Thr Val Glu Met Leu Phe Gln Asn Leu Ser Leu Ile
85 90 95

Lys Lys Tyr Ile Asp Arg Gln Lys Glu Lys Cys Gly Glu Glu Arg Arg
100 105 110

Arg Thr Arg Gln Phe Leu Asp Tyr Leu Gln Glu Phe Leu Gly Val Met
115 120 125

Ser Thr Glu Trp Ala Met Glu Gly
130 135

<210> 333

<211> 134

<212> PRT

<213> Artificial Sequence

<220>

<223> mouse C-IL-5-F construct

<400> 333

Ala Asp Pro Gly Cys Gly Gly Gly Gly Gly Leu Ala Met Glu Ile Pro
1 5 10 15

Met Ser Thr Val Val Lys Glu Thr Leu Thr Gln Leu Ser Ala His Arg
20 25 30

Ala Leu Leu Thr Ser Asn Glu Thr Met Arg Leu Pro Val Pro Thr His
35 40 45

Lys Asn His Gln Leu Cys Ile Gly Glu Ile Phe Gln Gly Leu Asp Ile
50 55 60

Leu Lys Asn Gln Thr Val Arg Gly Gly Thr Val Glu Met Leu Phe Gln
65 70 75 80

Asn Leu Ser Leu Ile Lys Lys Tyr Ile Asp Arg Gln Lys Glu Lys Cys

85

90

95

Gly Glu Glu Arg Arg Arg Thr Arg Gln Phe Leu Asp Tyr Leu Gln Glu
100 105 110

Phe Leu Gly Val Met Ser Thr Glu Trp Ala Met Glu Gly Leu Glu Val
115 120 125

Leu Ala Ile Glu Gly Arg
130

<210> 334

<211> 121

<212> PRT

<213> Artificial Sequence

<220>

<223> mouse C-IL-5-S construct

<400> 334

Leu Ala Cys Gly Gly Gly Gly Gly Met Glu Ile Pro Met Ser Thr Val
1 5 10 15

Val Lys Glu Thr Leu Thr Gln Leu Ser Ala His Arg Ala Leu Leu Thr
20 25 30

Ser Asn Glu Thr Met Arg Leu Pro Val Pro Thr His Lys Asn His Gln
35 40 45

Leu Cys Ile Gly Glu Ile Phe Gln Gly Leu Asp Ile Leu Lys Asn Gln
50 55 60

Thr Val Arg Gly Gly Thr Val Glu Met Leu Phe Gln Asn Leu Ser Leu
65 70 75 80

Ile Lys Lys Tyr Ile Asp Arg Gln Lys Glu Lys Cys Gly Glu Glu Arg
85 90 95

Arg Arg Thr Arg Gln Phe Leu Asp Tyr Leu Gln Glu Phe Leu Gly Val
100 105 110

Met Ser Thr Glu Trp Ala Met Glu Gly
115 120

<210> 335

<211> 138

<212> PRT

<213> Artificial Sequence

<220>

<223> human C-IL-5-E construct

<400> 335

Ala Leu Val Gly Cys Gly Gly Pro Lys Pro Ser Thr Pro Pro Gly Ser
1 5 10 15

Ser Gly Gly Ala Pro Ala Ser Ile Pro Thr Glu Ile Pro Thr Ser Ala
20 25 30

Leu Val Lys Glu Thr Leu Ala Leu Leu Ser Thr His Arg Thr Leu Leu
35 40 45

Ile Ala Asn Glu Thr Leu Arg Ile Pro Val Pro Val His Lys Asn His
50 55 60

Gln Leu Cys Thr Glu Glu Ile Phe Gln Gly Ile Gly Thr Leu Glu Ser
65 70 75 80

Gln Thr Val Gln Gly Gly Thr Val Glu Arg Leu Phe Lys Asn Leu Ser
85 90 95

Leu Ile Lys Lys Tyr Ile Asp Gly Gln Lys Lys Lys Cys Gly Glu Glu
100 105 110

Arg Arg Arg Val Asn Gln Phe Leu Asp Tyr Leu Gln Glu Phe Leu Gly
115 120 125

Val Met Asn Thr Glu Trp Ile Ile Glu Ser
130 135

<210> 336

<211> 136

<212> PRT

<213> Artificial Sequence

<220>

<223> human C-IL-5-F construct

<400> 336

Ala Asp Pro Gly Cys Gly Gly Gly Gly Gly Leu Ala Ile Pro Thr Glu
1 5 10 15

Ile Pro Thr Ser Ala Leu Val Lys Glu Thr Leu Ala Leu Leu Ser Thr
20 25 30

His Arg Thr Leu Leu Ile Ala Asn Glu Thr Leu Arg Ile Pro Val Pro

35 40 45

Val His Lys Asn His Gln Leu Cys Thr Glu Glu Ile Phe Gln Gly Ile
50 55 60

Gly Thr Leu Glu Ser Gln Thr Val Gln Gly Gly Thr Val Glu Arg Leu
65 70 75 80

Phe Lys Asn Leu Ser Leu Ile Lys Lys Tyr Ile Asp Gly Gln Lys Lys
85 90 95

Lys Cys Gly Glu Glu Arg Arg Arg Val Asn Gln Phe Leu Asp Tyr Leu
100 105 110

Gln Glu Phe Leu Gly Val Met Asn Thr Glu Trp Ile Ile Glu Ser Leu
115 120 125

Glu Val Leu Ala Ile Glu Gly Arg
130 135

<210> 337
<211> 123
<212> PRT
<213> Artificial Sequence

<220>
<223> human C-IL-5-S construct

<400> 337

Leu Ala Cys Gly Gly Gly Gly Gly Ile Pro Thr Glu Ile Pro Thr Ser
1 5 10 15

Ala Leu Val Lys Glu Thr Leu Ala Leu Leu Ser Thr His Arg Thr Leu
20 25 30

Leu Ile Ala Asn Glu Thr Leu Arg Ile Pro Val Pro Val His Lys Asn
35 40 45

His Gln Leu Cys Thr Glu Glu Ile Phe Gln Gly Ile Gly Thr Leu Glu
50 55 60

Ser Gln Thr Val Gln Gly Gly Thr Val Glu Arg Leu Phe Lys Asn Leu
65 70 75 80

Ser Leu Ile Lys Lys Tyr Ile Asp Gly Gln Lys Lys Lys Cys Gly Glu
85 90 95

Glu Arg Arg Arg Val Asn Gln Phe Leu Asp Tyr Leu Gln Glu Phe Leu
100 105 110

Gly Val Met Asn Thr Glu Trp Ile Ile Glu Ser
115 120

<210> 338
<211> 27
<212> PRT
<213> Artificial Sequence

<220>
<223> primer NheIL13-F

<400> 338

Cys Thr Ala Gly Cys Thr Ala Gly Cys Cys Gly Gly Gly Cys Cys Gly
1 5 10 15

Gly Thr Gly Cys Cys Ala Ala Gly Ala Thr Cys
20 25

<210> 339
<211> 26
<212> DNA
<213> Artificial Sequence

<220>
<223> primer XhoIL13-R

<400> 339
tttctcgagg aaggggccgt ggcgaa

26

<210> 340
<211> 55
<212> DNA
<213> Artificial Sequence

<220>
<223> primer Spelinker3-F1

<400> 340
ccccgccggg ttcttctggc ggtgctccgg ctagcatgga gattcccatg agcac

55

<210> 341
<211> 52
<212> DNA
<213> Artificial Sequence

<220>
<223> Primer SpeNlinker3-F2

<400> 341
ttttactagt tggttgcggc ggcccgaac cgagcacccc gccgggttct tc

52

<210> 342
<211> 49
<212> DNA
<213> Artificial Sequence

<220>
<223> Primer IL5StopXho-R

<400> 342
ttttgcgggc gcgtttaaac tcgagttatt agccttccat tgcccactc 49

<210> 343
<211> 25
<212> DNA
<213> Artificial Sequence

<220>
<223> Primer BamH1-FLK1-F

<400> 343
cgcgatcca ttcacgcct ctgtc 25

<210> 344
<211> 26
<212> DNA
<213> Artificial Sequence

<220>
<223> Primer Nhe1-FLK1-B

<400> 344
ctagctagct ttgtgtgaac tcggac 26

<210> 345
<211> 205
<212> PRT
<213> Artificial Sequence

<220>
<223> mVEGFR-2 (2-3) fragment

<400> 345

Pro Phe Ile Ala Ser Val Ser Asp Gln His Gly Ile Val Tyr Ile Thr
1 5 10 15

Glu Asn Lys Asn Lys Thr Val Val Ile Pro Cys Arg Gly Ser Ile Ser
20 25 30

Asn Leu Asn Val Ser Leu Cys Ala Arg Tyr Pro Glu Lys Arg Phe Val
35 40 45

Pro Asp Gly Asn Arg Ile Ser Trp Asp Ser Glu Ile Gly Phe Thr Leu
50 55 60

Pro Ser Tyr Met Ile Ser Tyr Ala Gly Met Val Phe Cys Glu Ala Lys
65 70 75 80

Ile Asn Asp Glu Thr Tyr Gln Ser Ile Met Tyr Ile Val Val Val Val
85 90 95

Gly Tyr Arg Ile Tyr Asp Val Ile Leu Ser Pro Pro His Glu Ile Glu
100 105 110

Leu Ser Ala Gly Glu Lys Leu Val Leu Asn Cys Thr Ala Arg Thr Glu
115 120 125

Leu Asn Val Gly Leu Asp Phe Thr Trp His Ser Pro Pro Ser Lys Ser
130 135 140

His His Lys Lys Ile Val Asn Arg Asp Val Lys Pro Phe Pro Gly Thr
145 150 155 160

Val Ala Lys Met Phe Leu Ser Thr Leu Thr Ile Glu Ser Val Thr Lys
165 170 175

Ser Asp Gln Gly Glu Tyr Thr Cys Val Ala Ser Ser Gly Arg Met Ile
180 185 190

Lys Arg Asn Arg Thr Phe Val Arg Val His Thr Lys Pro
195 200 205

<210> 346

<211> 263

<212> PRT

<213> Artificial Sequence

<220>

<223> human C-LT_49-306 fragment

<400> 346

Leu Ala Cys Gly Gly Gln Asp Gln Gly Arg Arg Val Glu Lys Ile Ile
1 5 10 15

Gly Ser Gly Ala Gln Ala Gln Lys Arg Leu Asp Asp Ser Lys Pro Ser
20 25 30

Cys Ile Leu Pro Ser Pro Ser Ser Leu Ser Glu Thr Pro Asp Pro Arg
35 40 45

Leu His Pro Gln Arg Ser Asn Ala Ser Arg Asn Leu Ala Ser Thr Ser

| | | | | |
|---|-----|-----|----|-----|
| 50 | | 55 | | 60 |
| Gln Gly Pro Val Ala Gln Ser Ser Arg Glu Ala Ser Ala Trp Met Thr | | | | |
| 65 | | 70 | 75 | 80 |
| Ile Leu Ser Pro Ala Ala Asp Ser Thr Pro Asp Pro Gly Val Gln Gln | | | | |
| | 85 | 90 | | 95 |
| Leu Pro Lys Gly Glu Pro Glu Thr Asp Leu Asn Pro Glu Leu Pro Ala | | | | |
| | 100 | 105 | | 110 |
| Ala His Leu Ile Gly Ala Trp Met Ser Gly Gln Gly Leu Ser Trp Glu | | | | |
| | 115 | 120 | | 125 |
| Ala Ser Gln Glu Glu Ala Phe Leu Arg Ser Gly Ala Gln Phe Ser Pro | | | | |
| | 130 | 135 | | 140 |
| Thr His Gly Leu Ala Leu Pro Gln Asp Gly Val Tyr Tyr Leu Tyr Cys | | | | |
| 145 | 150 | 155 | | 160 |
| His Val Gly Tyr Arg Gly Arg Thr Pro Pro Ala Gly Arg Ser Arg Ala | | | | |
| | 165 | 170 | | 175 |
| Arg Ser Leu Thr Leu Arg Ser Ala Leu Tyr Arg Ala Gly Gly Ala Tyr | | | | |
| | 180 | 185 | | 190 |
| Gly Arg Gly Ser Pro Glu Leu Leu Leu Glu Gly Ala Glu Thr Val Thr | | | | |
| | 195 | 200 | | 205 |
| Pro Val Val Asp Pro Ile Gly Tyr Gly Ser Leu Trp Tyr Thr Ser Val | | | | |
| | 210 | 215 | | 220 |
| Gly Phe Gly Gly Leu Ala Gln Leu Arg Ser Gly Glu Arg Val Tyr Val | | | | |
| 225 | 230 | 235 | | 240 |
| Asn Ile Ser His Pro Asp Met Val Asp Tyr Arg Arg Gly Lys Thr Phe | | | | |
| | 245 | 250 | | 255 |
| Phe Gly Ala Val Met Val Gly | | | | |
| | 260 | | | |

<210> 347
 <211> 186
 <212> PRT
 <213> Artificial Sequence
 <220>

<223> human C-LT_126-306 fragment

<400> 347

Leu Ala Cys Gly Gly Ser Pro Ala Ala Asp Ser Thr Pro Asp Pro Gly
1 5 10 15

Val Gln Gln Leu Pro Lys Gly Glu Pro Glu Thr Asp Leu Asn Pro Glu
20 25 30

Leu Pro Ala Ala His Leu Ile Gly Ala Trp Met Ser Gly Gln Gly Leu
35 40 45

Ser Trp Glu Ala Ser Gln Glu Glu Ala Phe Leu Arg Ser Gly Ala Gln
50 55 60

Phe Ser Pro Thr His Gly Leu Ala Leu Pro Gln Asp Gly Val Tyr Tyr
65 70 75 80

Leu Tyr Cys His Val Gly Tyr Arg Gly Arg Thr Pro Pro Ala Gly Arg
85 90 95

Ser Arg Ala Arg Ser Leu Thr Leu Arg Ser Ala Leu Tyr Arg Ala Gly
100 105 110

Gly Ala Tyr Gly Arg Gly Ser Pro Glu Leu Leu Leu Glu Gly Ala Glu
115 120 125

Thr Val Thr Pro Val Val Asp Pro Ile Gly Tyr Gly Ser Leu Trp Tyr
130 135 140

Thr Ser Val Gly Phe Gly Gly Leu Ala Gln Leu Arg Ser Gly Glu Arg
145 150 155 160

Val Tyr Val Asn Ile Ser His Pro Asp Met Val Asp Tyr Arg Arg Gly
165 170 175

Lys Thr Phe Phe Gly Ala Val Met Val Gly
180 185

<210> 348

<211> 117

<212> PRT

<213> Artificial Sequence

<220>

<223> Modified human prion protein fragment

<400> 348

Val Gly Gly Leu Gly Gly Tyr Met Leu Gly Ser Ala Met Ser Arg Pro
1 5 10 15

Ile Ile His Phe Gly Ser Asp Tyr Glu Asp Arg Tyr Tyr Arg Glu Asn
20 25 30

Met His Arg Tyr Pro Asn Gln Val Tyr Tyr Arg Pro Met Asp Glu Tyr
35 40 45

Ser Asn Gln Asn Asn Phe Val His Asp Cys Val Asn Ile Thr Ile Lys
50 55 60

Gln His Thr Val Thr Thr Thr Thr Lys Gly Glu Asn Phe Thr Glu Thr
65 70 75 80

Asp Val Lys Met Met Glu Arg Val Val Glu Gln Met Cys Ile Thr Gln
85 90 95

Tyr Glu Arg Glu Ser Gln Ala Tyr Tyr Gln Arg Gly Arg Leu Ala Gly
100 105 110

Gly Gly Gly Cys Gly
115

<210> 349

<211> 117

<212> PRT

<213> Artificial Sequence

<220>

<223> Modified bovine prion protein fragment

<400> 349

Val Gly Gly Leu Gly Gly Tyr Met Leu Gly Ser Ala Met Ser Arg Pro
1 5 10 15

Leu Ile His Phe Gly Ser Asp Tyr Glu Asp Arg Tyr Tyr Arg Glu Asn
20 25 30

Met His Arg Tyr Pro Asn Gln Val Tyr Tyr Arg Pro Val Asp Gln Tyr
35 40 45

Ser Asn Gln Asn Asn Phe Val His Asp Cys Val Asn Ile Thr Val Lys
50 55 60

Glu His Thr Val Thr Thr Thr Thr Lys Gly Glu Asn Phe Thr Glu Thr
65 70 75 80

Asp Ile Lys Met Met Glu Arg Val Val Glu Gln Met Cys Ile Thr Gln
85 90 95

Tyr Gln Arg Glu Ser Gln Ala Tyr Tyr Gln Arg Gly Arg Leu Ala Gly
100 105 110

Gly Gly Gly Cys Gly
115

<210> 350

<211> 117

<212> PRT

<213> Artificial Sequence

<220>

<223> Modified sheep prion protein fragment

<400> 350

Val Gly Gly Leu Gly Gly Tyr Met Leu Gly Ser Ala Met Ser Arg Pro
1 5 10 15

Leu Ile His Phe Gly Asn Asp Tyr Glu Asp Arg Tyr Tyr Arg Glu Asn
20 25 30

Met Tyr Arg Tyr Pro Asn Gln Val Tyr Tyr Arg Pro Val Asp Arg Tyr
35 40 45

Ser Asn Gln Asn Asn Phe Val His Asp Cys Val Asn Ile Thr Val Lys
50 55 60

Gln His Thr Val Thr Thr Thr Lys Gly Glu Asn Phe Thr Glu Thr
65 70 75 80

Asp Ile Lys Ile Met Glu Arg Val Val Glu Gln Met Cys Ile Thr Gln
85 90 95

Tyr Gln Arg Glu Ser Gln Ala Tyr Tyr Gln Arg Gly Arg Leu Ala Gly
100 105 110

Gly Gly Gly Cys Gly
115

<210> 351

<211> 26

<212> PRT

<213> Homo sapiens

<220>

<223> VEGFR-II derived peptide

<400> 351

Cys Thr Ala Arg Thr Glu Leu Asn Val Gly Ile Asp Phe Asn Trp Glu
1 5 10 15

Tyr Pro Ser Ser Lys His Gln His Lys Lys
20 25

<210> 352

<211> 26

<212> PRT

<213> Artificial

<220>

<223> Murine VEGFR-II derived peptide

<400> 352

Cys Thr Ala Arg Thr Glu Leu Asn Val Gly Leu Asp Phe Thr Trp His
1 5 10 15

Ser Pro Pro Ser Lys Ser His His Lys Lys
20 25

<210> 353

<211> 14

<212> PRT

<213> Artificial

<220>

<223> Angiotensinogen

<400> 353

Asp Arg Val Tyr Ile His Pro Phe His Leu Val Ile His Asn
1 5 10

<210> 354

<211> 10

<212> PRT

<213> Artificial

<220>

<223> Angiotensin I

<400> 354

Asp Arg Val Tyr Ile His Pro Phe His Leu
1 5 10

<210> 355

<211> 8
<212> PRT
<213> Artificial

<220>
<223> Angiotensin II

<400> 355

Asp Arg Val Tyr Ile His Pro Phe
1 5

<210> 356
<211> 26
<212> PRT
<213> Homo sapiens

<220>
<223> cprplong

<400> 356

Cys Ser Ala Met Ser Arg Pro Ile Ile His Phe Gly Ser Asp Tyr Glu
1 5 10 15

Asp Arg Tyr Tyr Arg Glu Asn Met His Arg
20 25

<210> 357
<211> 16
<212> PRT
<213> Homo sapiens

<220>
<223> cprpshort

<400> 357

Cys Gly Ser Asp Tyr Glu Asp Arg Tyr Tyr Arg Glu Asn Met His Arg
1 5 10 15

<210> 358
<211> 14
<212> PRT
<213> Artificial

<220>
<223> MuTNFa Peptide

<400> 358

Cys Gly Gly Val Glu Glu Gln Leu Glu Trp Leu Ser Gln Arg
1 5 10

<210> 359
<211> 22

<212> PRT
<213> Artificial

<220>
<223> 3'TNF II Peptide

<400> 359

Ser Ser Gln Asn Ser Ser Asp Lys Pro Val Ala His Val Val Ala Asn
1 5 10 15

His Gly Val Gly Gly Cys
20

<210> 360
<211> 20
<212> PRT
<213> Artificial

<220>
<223> 5'TNF II Peptide

<400> 360

Cys Ser Ser Gln Asn Ser Ser Asp Lys Pro Val Ala His Val Val Ala
1 5 10 15

Asn His Gly Val
20

<210> 361
<211> 22
<212> PRT
<213> Homo sapiens

<220>
<223> 4-22 epitope

<400> 361

Ser Ser Arg Thr Pro Ser Asp Lys Pro Val Ala His Val Val Ala Asn
1 5 10 15

Pro Gln Ala Glu Gly Gln
20

<210> 362
<211> 11
<212> PRT
<213> Homo sapiens

<220>
<223> amino acid residues 22-32

<400> 362

Gln Leu Gln Trp Leu Asn Arg Arg Ala Asn Ala
1 5 10

<210> 363
<211> 74
<212> DNA
<213> Artificial

<220>
<223> pET22b(+)

<400> 363
gtttaacttt aagaaggaga tatacatatg gatccggcta gcgctcgagg gtttaaacgg 60
cggccgcatg cacc 74

<210> 364
<211> 26
<212> PRT
<213> Artificial

<220>
<223> cprplong prion peptide

<400> 364

Cys Ser Ala Met Ser Arg Pro Met Ile His Phe Gly Asn Asp Trp Glu
1 5 10 15

Asp Arg Tyr Tyr Arg Glu Asn Met Tyr Arg
20 25

<210> 365
<211> 16
<212> PRT
<213> Artificial

<220>
<223> cprpshort prion peptide

<400> 365

Cys Gly Asn Asp Trp Glu Asp Arg Tyr Tyr Arg Glu Asn Met Tyr Arg
1 5 10 15

<210> 366
<211> 26
<212> PRT
<213> Artificial

<220>
<223> murine VEGFR-2 peptide

<400> 366

Cys Thr Ala Arg Thr Glu Leu Asn Val Gly Leu Asp Phe Thr Trp His
1 5 10 15

Ser Pro Pro Ser Lys Ser His His Lys Lys
20 25

<210> 367
<211> 18
<212> PRT
<213> Artificial

<220>
<223> ABeta 1-15

<400> 367

Asp Ala Glu Phe Arg His Asp Ser Gly Tyr Glu Val His His Gln Gly
1 5 10 15

Gly Cys

<210> 368
<211> 30
<212> PRT
<213> Artificial

<220>
<223> ABeta 1-27

<400> 368

Asp Ala Glu Phe Arg His Asp Ser Gly Tyr Glu Val His His Gln Lys
1 5 10 15

Leu Val Phe Phe Ala Glu Asp Val Gly Ser Asn Gly Gly Cys
20 25 30

<210> 369
<211> 17
<212> PRT
<213> Artificial

<220>
<223> ABeta 33-42

<400> 369

Cys Gly His Gly Asn Lys Ser Gly Leu Met Val Gly Gly Val Val Ile
1 5 10 15

Ala

<210> 370
<211> 37

<212> DNA
<213> Artificial

<220>
<223> inverse primer

<400> 370
ggtaacatcg gtcgagatgg aaaacaaact ctgggtcc 37

<210> 371
<211> 37
<212> DNA
<213> Artificial

<220>
<223> inverse primer

<400> 371
ggaccagagt ttgttttcca tctcgaccga tgttacc 37

<210> 372
<211> 22
<212> DNA
<213> Artificial

<220>
<223> upstream primer

<400> 372
agctcgccccg gggatcctct ag 22

<210> 373
<211> 40
<212> DNA
<213> Artificial

<220>
<223> downstream primer

<400> 373
cgatgcattt catccttagt tatcaatacg ctgggttcag 40

<210> 374
<211> 36
<212> DNA
<213> Artificial

<220>
<223> inverse primer

<400> 374
ggcaaaatta gagactgtta ctttaggtaa gatcgg 36

<210> 375
<211> 36
<212> DNA

<213> Artificial

<220>
<223> inverse primer

<400> 375
ccgatcttac ctaaagtaac agtctctaataa tttgcc 36

<210> 376
<211> 33
<212> DNA
<213> Artificial

<220>
<223> Upstream primer

<400> 376
ggccatggca cgactcgaga ctgttacttt agg 33

<210> 377
<211> 19
<212> DNA
<213> Artificial

<220>
<223> Downstream primer

<400> 377
gatttaggtg acactatag 19

<210> 378
<211> 37
<212> DNA
<213> Artificial

<220>
<223> Inverse primer

<400> 378
gatggacgtc aaactctggt cctcaatccg cgtggggg 37

<210> 379
<211> 37
<212> DNA
<213> Artificial

<220>
<223> Inverse primer

<400> 379
ccccacgcgg attgaggacc agagtttgac gtccatc 37

<210> 380
<211> 11
<212> PRT
<213> Artificial

<220>

<223> Angio I

<400> 380

| | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Cys | Gly | Gly | Asp | Arg | Val | Tyr | Ile | His | Pro | Phe |
| 1 | | | | 5 | | | | | 10 | |

<210> 381

<211> 13

<212> PRT

<213> Artificial

<220>

<223> Angio II

<400> 381

| | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Cys | Gly | Gly | Asp | Arg | Val | Tyr | Ile | His | Pro | Phe | His | Leu |
| 1 | | | | 5 | | | | | 10 | | | |

<210> 382

<211> 13

<212> PRT

<213> Artificial

<220>

<223> Angio III

<400> 382

| | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Asp | Arg | Val | Tyr | Ile | His | Pro | Phe | His | Leu | Gly | Gly | Cys |
| 1 | | | | 5 | | | | | 10 | | | |

<210> 383

<211> 11

<212> PRT

<213> Artificial

<220>

<223> Angio IV

<400> 383

| | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Cys | Asp | Arg | Val | Tyr | Ile | His | Pro | Phe | His | Leu |
| 1 | | | | 5 | | | | | 10 | |

<210> 384

<211> 23

<212> PRT

<213> Artificial

<220>

<223> Der p I p52; aa 52-72

<400> 384

Cys Gly Asn Gln Ser Leu Asp Leu Ala Glu Gln Glu Leu Val Asp Cys
1 5 10 15

Ala Ser Gln His Gly Cys His
20

<210> 385
<211> 21
<212> PRT
<213> Artificial

<220>
<223> Der p 1 p117; aa 117-137

<400> 385

Cys Gln Ile Tyr Pro Pro Asn Ala Asn Lys Ile Arg Glu Ala Leu Ala
1 5 10 15

Gln Thr His Ser Ala
20

<210> 386
<211> 38
<212> DNA
<213> Artificial

<220>
<223> HBcAgwtHindIIII

<400> 386

cgcggtcccaa gcttctaaca ttgagattcc cgagattg

38

<210> 387
<211> 14
<212> PRT
<213> Artificial

<220>
<223> muTNFa peptide

<400> 387

Cys Gly Gly Val Glu Glu Gln Leu Glu Trp Leu Ser Gln Arg
1 5 10

<210> 388
<211> 54
<212> DNA
<213> Artificial

<220>
<223> Primer CA2F

<400> 388
cggctcgagc atcaccatca ccatcacggt gaagttaaac tgcagctgga gtcg 54

<210> 389
<211> 52
<212> DNA
<213> Artificial

<220>
<223> Primer CA1R

<400> 389
catgccatgg ttaaccacag gtgtggggttt tatcacaaga tttgggcaca ac 52

<210> 390
<211> 61
<212> DNA
<213> Artificial

<220>
<223> Primer CB1R

<400> 390
catgccatgg ttaaccacac ggcggagagg tgtggggttt atcacaagat ttgggctcaa 60
c 61

<210> 391
<211> 58
<212> DNA
<213> Artificial

<220>
<223> Primer CC1R

<400> 391
ccagaagaac ccggcgggggt agacggtttc gggctagcac aagatttggg ctcaactc 58

<210> 392
<211> 60
<212> DNA
<213> Artificial

<220>
<223> Primer CC1F

<400> 392
cgccgggttc ttctggtggt gctccgggtg gttgcggtta accatggaga aaataaagag 60

<210> 393
<211> 18
<212> DNA
<213> Artificial

<220>
<223> Primer CCR2

<400> 393
ctcccgggta gaagtcac

18

<210> 394
<211> 219
<212> PRT
<213> Artificial

<220>
<223> Light chains of pCA2, pCB2 and pCC2

<400> 394

Asp Ile Glu Leu Val Val Thr Gln Pro Ala Ser Val Ser Gly Ser Pro
1 5 10 15

Gly Gln Ser Ile Thr Ile Ser Cys Thr Gly Thr Arg Ser Asp Val Gly
20 25 30

Gly Tyr Asn Tyr Val Ser Trp Tyr Gln Gln His Pro Gly Lys Ala Pro
35 40 45

Lys Leu Met Ile Tyr Asp Val Ser Asn Arg Pro Ser Gly Val Ser Asn
50 55 60

Arg Phe Ser Gly Ser Lys Ser Gly Asn Thr Ala Ser Leu Thr Ile Ser
65 70 75 80

Gly Leu Gln Ala Glu Asp Glu Ala Asp Tyr Tyr Cys Ser Ser Tyr Thr
85 90 95

Ser Ser Ser Thr Leu Gly Val Phe Gly Gly Gly Thr Lys Leu Thr Val
100 105 110

Leu Gly Gln Pro Lys Ala Ala Pro Ser Val Thr Leu Phe Pro Pro Ser
115 120 125

Ser Glu Glu Leu Gln Ala Asn Lys Ala Thr Leu Val Cys Leu Ile Ser
130 135 140

Asp Phe Tyr Pro Gly Ala Val Thr Val Ala Trp Lys Ala Asp Ser Ser
145 150 155 160

Pro Val Lys Ala Gly Val Glu Thr Thr Thr Pro Ser Lys Gln Ser Asn
165 170 175

Asn Lys Tyr Ala Ala Ser Ser Tyr Leu Ser Leu Thr Pro Glu Gln Trp
180 185 190

Lys Ser His Lys Ser Tyr Ser Cys Gln Val Thr His Glu Gly Ser Thr
195 200 205

Val Glu Lys Thr Val Ala Pro Thr Glu Cys Ser
210 215

<210> 395
<211> 251
<212> PRT
<213> Artificial

<220>
<223> Heavy chain of pCA2

<400> 395

Glu Val Lys Leu Gln Leu Glu His His His His His His Gly Glu Val
1 5 10 15

Lys Leu Gln Leu Glu Ser Gly Pro Gly Leu Val Lys Pro Ser Glu Thr
20 25 30

Leu Ser Leu Thr Cys Thr Val Ser Gly Gly Ser Ile Ser Ser Gly Gly
35 40 45

Tyr Tyr Trp Thr Trp Ile Arg Gln Arg Pro Gly Lys Gly Leu Glu Trp
50 55 60

Ile Gly Tyr Ile Tyr Tyr Ser Gly Ser Thr Ser Tyr Asn Pro Ser Leu
65 70 75 80

Lys Ser Arg Val Thr Met Ser Val Asp Thr Ser Lys Asn Gln Phe Ser
85 90 95

Leu Arg Leu Thr Ser Val Thr Ala Ala Asp Thr Ala Val Tyr Tyr Cys
100 105 110

Ala Arg Glu Arg Gly Glu Thr Gly Leu Tyr Tyr Pro Tyr Tyr Tyr Ile
115 120 125

Asp Val Trp Gly Thr Gly Thr Thr Val Thr Val Ser Ser Ala Ser Thr
130 135 140

Lys Gly Pro Ser Val Phe Pro Leu Ala Pro Ser Ser Lys Ser Thr Ser
145 150 155 160

Gly Gly Thr Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr Phe Pro Glu

| | | | | | |
|---|-----|--|-----|--|-----|
| | 165 | | 170 | | 175 |
| Pro Val Thr Val Ser Trp Asn Ser Gly Ala Leu Thr Ser Gly Val His | 180 | | 185 | | 190 |
| Thr Phe Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser Ser | 195 | | 200 | | 205 |
| Val Val Thr Val Pro Ser Ser Ser Leu Gly Thr Gln Thr Tyr Ile Cys | 210 | | 215 | | 220 |
| Asn Val Asn His Lys Pro Ser Asn Thr Lys Val Asp Lys Arg Val Glu | 225 | | 230 | | 235 |
| | | | | | 240 |
| Pro Lys Ser Cys Asp Lys Thr His Thr Cys Gly | 245 | | 250 | | |
| <210> 396 | | | | | |
| <211> 254 | | | | | |
| <212> PRT | | | | | |
| <213> Artificial | | | | | |
| <220> | | | | | |
| <223> Heavy chain of pCB2 | | | | | |
| <400> 396 | | | | | |
| Glu Val Lys Leu Gln Leu Glu His His His His His His Gly Glu Val | 1 | | 5 | | 10 |
| | | | | | 15 |
| Lys Leu Gln Leu Glu Ser Gly Pro Gly Leu Val Lys Pro Ser Glu Thr | 20 | | 25 | | 30 |
| Leu Ser Leu Thr Cys Thr Val Ser Gly Gly Ser Ile Ser Ser Gly Gly | 35 | | 40 | | 45 |
| Tyr Tyr Trp Thr Trp Ile Arg Gln Arg Pro Gly Lys Gly Leu Glu Trp | 50 | | 55 | | 60 |
| Ile Gly Tyr Ile Tyr Tyr Ser Gly Ser Thr Ser Tyr Asn Pro Ser Leu | 65 | | 70 | | 75 |
| | | | | | 80 |
| Lys Ser Arg Val Thr Met Ser Val Asp Thr Ser Lys Asn Gln Phe Ser | 85 | | 90 | | 95 |
| Leu Arg Leu Thr Ser Val Thr Ala Ala Asp Thr Ala Val Tyr Tyr Cys | 100 | | 105 | | 110 |

Ala Arg Glu Arg Gly Glu Thr Gly Leu Tyr Tyr Pro Tyr Tyr Tyr Ile
115 120 125

Asp Val Trp Gly Thr Gly Thr Thr Val Thr Val Ser Ser Ala Ser Thr
130 135 140

Lys Gly Pro Ser Val Phe Pro Leu Ala Pro Ser Ser Lys Ser Thr Ser
145 150 155 160

Gly Gly Thr Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr Phe Pro Glu
165 170 175

Pro Val Thr Val Ser Trp Asn Ser Gly Ala Leu Thr Ser Gly Val His
180 185 190

Thr Phe Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser Ser
195 200 205

Val Val Thr Val Pro Ser Ser Ser Leu Gly Thr Gln Thr Tyr Ile Cys
210 215 220

Asn Val Asn His Lys Pro Ser Asn Thr Lys Val Asp Lys Arg Val Glu
225 230 235 240

Pro Lys Ser Cys Asp Lys Thr His Thr Ser Pro Pro Cys Gly
245 250

<210> 397
<211> 263
<212> PRT
<213> Artificial

<220>
<223> Heavy chain of pCC2

<400> 397

Glu Val Lys Leu Gln Leu Glu His His His His His His Gly Glu Val
1 5 10 15

Lys Leu Gln Leu Glu Ser Gly Pro Gly Leu Val Lys Pro Ser Glu Thr
20 25 30

Leu Ser Leu Thr Cys Thr Val Ser Gly Gly Ser Ile Ser Ser Gly Gly
35 40 45

Tyr Tyr Trp Thr Trp Ile Arg Gln Arg Pro Gly Lys Gly Leu Glu Trp
50 55 60

Ile Gly Tyr Ile Tyr Tyr Ser Gly Ser Thr Ser Tyr Asn Pro Ser Leu
65 70 75 80

Lys Ser Arg Val Thr Met Ser Val Asp Thr Ser Lys Asn Gln Phe Ser
85 90 95

Leu Arg Leu Thr Ser Val Thr Ala Ala Asp Thr Ala Val Tyr Tyr Cys
100 105 110

Ala Arg Glu Arg Gly Glu Thr Gly Leu Tyr Tyr Pro Tyr Tyr Tyr Ile
115 120 125

Asp Val Trp Gly Thr Gly Thr Thr Val Thr Val Ser Ser Ala Ser Thr
130 135 140

Lys Gly Pro Ser Val Phe Pro Leu Ala Pro Ser Ser Lys Ser Thr Ser
145 150 155 160

Gly Gly Thr Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr Phe Pro Glu
165 170 175

Pro Val Thr Val Ser Trp Asn Ser Gly Ala Leu Thr Ser Gly Val His
180 185 190

Thr Phe Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser Ser
195 200 205

Val Val Thr Val Pro Ser Ser Ser Leu Gly Thr Gln Thr Tyr Ile Cys
210 215 220

Asn Val Asn His Lys Pro Ser Asn Thr Lys Val Asp Lys Arg Val Glu
225 230 235 240

Pro Lys Ser Cys Ala Ser Pro Lys Pro Ser Thr Pro Pro Gly Ser Ser
245 250 255

Gly Gly Ala Pro Gly Gly Cys
260

<210> 398

<211> 23

<212> PRT

<213> Artificial

<220>

<223> TNF-alpha attachment

<400> 398

Cys Ser Ser Arg Thr Pro Ser Asp Lys Pro Val Ala His Val Val Ala
1 5 10 15

Asn Pro Gln Ala Glu Gly Gln
20

<210> 399

<211> 25

<212> PRT

<213> Artificial

<220>

<223> TNF-alpha attachment

<400> 399

Ser Ser Arg Thr Pro Ser Asp Lys Pro Val Ala His Val Val Ala Asn
1 5 10 15

Pro Gln Ala Glu Gly Gln Gly Gly Cys
20 25

<210> 400

<211> 14

<212> PRT

<213> Artificial

<220>

<223> TNF-alpha attachment

<400> 400

Cys Gly Gly Gln Leu Gln Trp Leu Asn Arg Arg Ala Asn Ala
1 5 10

<210> 401

<211> 26

<212> PRT

<213> Bovine

<220>

<223> cprplong

<400> 401

Cys Ser Ala Met Ser Arg Pro Leu Ile His Phe Gly Asn Asp Tyr Glu
1 5 10 15

Asp Arg Tyr Tyr Arg Glu Asn Met His Arg
20 25

<210> 402

<211> 16
<212> PRT
<213> Bovine

<220>
<223> cprpshort

<400> 402

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Cys | Gly | Asn | Asp | Tyr | Glu | Asp | Arg | Tyr | Tyr | Arg | Glu | Asn | Met | His | Arg |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | |

<210> 403
<211> 26
<212> PRT
<213> Sheep

<220>
<223> cprplong

<400> 403

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Cys | Ser | Ala | Met | Ser | Arg | Pro | Leu | Ile | His | Phe | Gly | Asn | Asp | Tyr | Glu |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | |

| | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Asp | Arg | Tyr | Tyr | Arg | Glu | Asn | Met | Tyr | Arg |
| | | | 20 | | | | | 25 | |

<210> 404
<211> 16
<212> PRT
<213> Sheep

<220>
<223> cprpshort

<400> 404

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Cys | Gly | Asn | Asp | Tyr | Glu | Asp | Arg | Tyr | Tyr | Arg | Glu | Asn | Met | Tyr | Arg |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | |

<210> 405
<211> 7
<212> PRT
<213> Artificial

<220>
<223> ABeta N-terminus fused

<400> 405

| | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|
| Cys | Gly | His | Gly | Asn | Lys | Ser |
| 1 | | | | 5 | | |

<210> 406
<211> 5
<212> PRT

<213> Artificial

<220>

<223> HBcAg1-183Lys construct

<400> 406

Gly Gly Lys Gly Gly
1 5

<210> 407

<211> 5

<212> PRT

<213> Artificial

<220>

<223> Glycine serine linkers

<400> 407

Gly Gly Gly Gly Ser
1 5

<210> 408

<211> 10

<212> PRT

<213> Artificial

<220>

<223> N-terminal gamma 1

<400> 408

Cys Gly Asp Lys Thr His Thr Ser Pro Pro
1 5 10

<210> 409

<211> 10

<212> PRT

<213> Artificial

<220>

<223> C-terminal gamma 1

<400> 409

Asp Lys Thr His Thr Ser Pro Pro Cys Gly
1 5 10

<210> 410

<211> 17

<212> PRT

<213> Artificial

<220>

<223> N-terminal gamma 3

<400> 410

Cys Gly Gly Pro Lys Pro Ser Thr Pro Pro Gly Ser Ser Gly Gly Ala
1 5 10 15

Pro

<210> 411

<211> 18

<212> PRT

<213> Artificial

<220>

<223> C-terminal gamma 3

<400> 411

Pro Lys Pro Ser Thr Pro Pro Gly Ser Ser Gly Gly Ala Pro Gly Gly
1 5 10 15

Cys Gly

<210> 412

<211> 6

<212> PRT

<213> Artificial

<220>

<223> N-terminal glycine linker

<400> 412

Gly Cys Gly Gly Gly Gly
1 5

<210> 413

<211> 6

<212> PRT

<213> Artificial

<220>

<223> C-terminal glycine linker

<400> 413

Gly Gly Gly Gly Cys Gly
1 5

<210> 414

<211> 4

<212> PRT

<213> Artificial

<220>
<223> C-terminal peptide linker

<400> 414

Gly Gly Cys Gly
1

<210> 415
<211> 5
<212> PRT
<213> Artificial

<220>
<223> Lymphotoxin-Beta linker

<400> 415

Leu Ala Cys Gly Gly
1 5

<210> 416
<211> 4
<212> PRT
<213> Artificial

<220>
<223> Amino acid linker

<400> 416

Ala Cys Gly Gly
1

<210> 417
<211> 8
<212> PRT
<213> Artificial

<220>
<223> N-terminal IL-13

<400> 417

Leu Ala Cys Gly Gly Gly Gly Gly
1 5

<210> 418
<211> 7
<212> PRT
<213> Artificial

<220>
<223> Amino acid linker

<400> 418

Ala Cys Gly Gly Gly Gly Gly
1 5

<210> 419
<211> 12
<212> PRT
<213> Artificial

<220>
<223> N-terminal IL-5

<400> 419

Ala Asp Pro Gly Cys Gly Gly Gly Gly Gly Leu Ala
1 5 10

<210> 420
<211> 7
<212> PRT
<213> Artificial

<220>
<223> Amino acid linker

<400> 420

Gly Cys Gly Gly Gly Gly Gly
1 5

<210> 421
<211> 31
<212> PRT
<213> Artificial

<220>
<223> Amidated ABeta 1-27

<220>
<221> MOD_RES
<222> (31)..(31)
<223> AMIDATION

<400> 421

Asp Ala Glu Phe Arg His Asp Ser Gly Tyr Glu Val His His Gln Lys
1 5 10 15

Leu Val Phe Phe Ala Glu Asp Val Gly Ser Asn Gly Gly Cys Xaa
20 25 30

<210> 422
<211> 17
<212> PRT
<213> Artificial

<220>
<223> Hydrogenated ABeta 33-42

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Xaa=Hydrogen

<400> 422

Xaa Cys Gly His Gly Asn Lys Ser Gly Leu Met Val Gly Gly Val Val
1 5 10 15

Ile

<210> 423
<211> 19
<212> PRT
<213> Artificial

<220>
<223> Amidated ABeta 1-15

<220>
<221> MOD_RES
<222> (19)..(19)
<223> AMIDATION

<400> 423

Asp Ala Glu Phe Arg His Asp Ser Gly Tyr Glu Val His His Gln Gly
1 5 10 15

Gly Cys Xaa

<210> 424
<211> 9
<212> PRT
<213> Artificial

<220>
<223> Amino acid linker

<400> 424

Gly Cys Gly Ser Gly Gly Gly Ser
1 5

<210> 425
<211> 10
<212> PRT
<213> Artificial

<220>

<223> Amino acid linker

<400> 425

Gly Ser Gly Gly Gly Gly Ser Gly Cys Gly
1 5 10

<210> 426

<211> 745

<212> DNA

<213> Artificial

<220>

<223> pCep-Xa-Fc* construct

<400> 426

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gatccagcag ctgggctcga ggtgctagcg ggaggggggtg gatgtgggat cgaaggtcgc      60
aagcttactc acacatgccc accgtgcccga gcacctgaag ccgaggggggc accgtcagtc      120
ttcctcttcc ccccaaaacc caaggacacc ctcatgatct cccggacccc tgaggtcaca      180
tgcggtggtg tggacgtgag ccacgaagac cctgaggtca agttcaactg gtacgtggac      240
ggcgtggagg tgcataatgc caagacaaag ccgcgggagg agcagtacaa cagcacgtac      300
cgtgtggtca gcgtcctcac cgtcctgcac caggactggc tgaatggcaa ggagtacaag      360
tgcaaggtct ccaacaaagc cctcccagcc tccatcgaga aaaccatctc caaagccaaa      420
gggcagcccc gagaaccaca ggtgtacacc ctgcccccat cccgggatga gctgaccaag      480
aaccaggtca gcctgacctg cctgggtcaaa ggcttctatc ccagcgacat cgccgtggag      540
tgggagagca atgggcagcc ggagaacaac tacaagacca cgcctcccggt gttggactcc      600
gacggctcct tcttctctta cagcaagctc accgtggaca agagcaggtg gcagcagggg      660
aacgtcttct catgctccgt gatgcatgag gctctgcaca accactacac gcagaagagc      720
ctctccctgt ctccgggtaa atgac      745
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<210> 427

<211> 96

<212> DNA

<213> Artificial

<220>

<223> pCep-EK-Fc* construct

<400> 427

```
gatccagcag ctgggctcga ggtgctagcg ggaggggggtg gatgtgggga cgatgacgac      60
aagcttactc acacatgccc accgtgcccga gcacct      96
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<210> 428

<211> 144
<212> DNA
<213> Artificial

<220>

<223> pCep-SP-EK-Fc* construct

<400> 428

atggagacag acacactcct gctatgggta ctgctgctct gggttccagg ttccactggg 60
gacgcggatc cagcagctgg gctcgagggtg ctagcgggag ggggtggatg tggggacgat 120
gacgacaagc ttactcacac atgc 144

<210> 429
<211> 399
<212> DNA
<213> Mouse

<220>

<223> Resistin protein Res-C-Xa

<400> 429

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1